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SUPPLEMENT TO

# WYOMING Land Use Decisions

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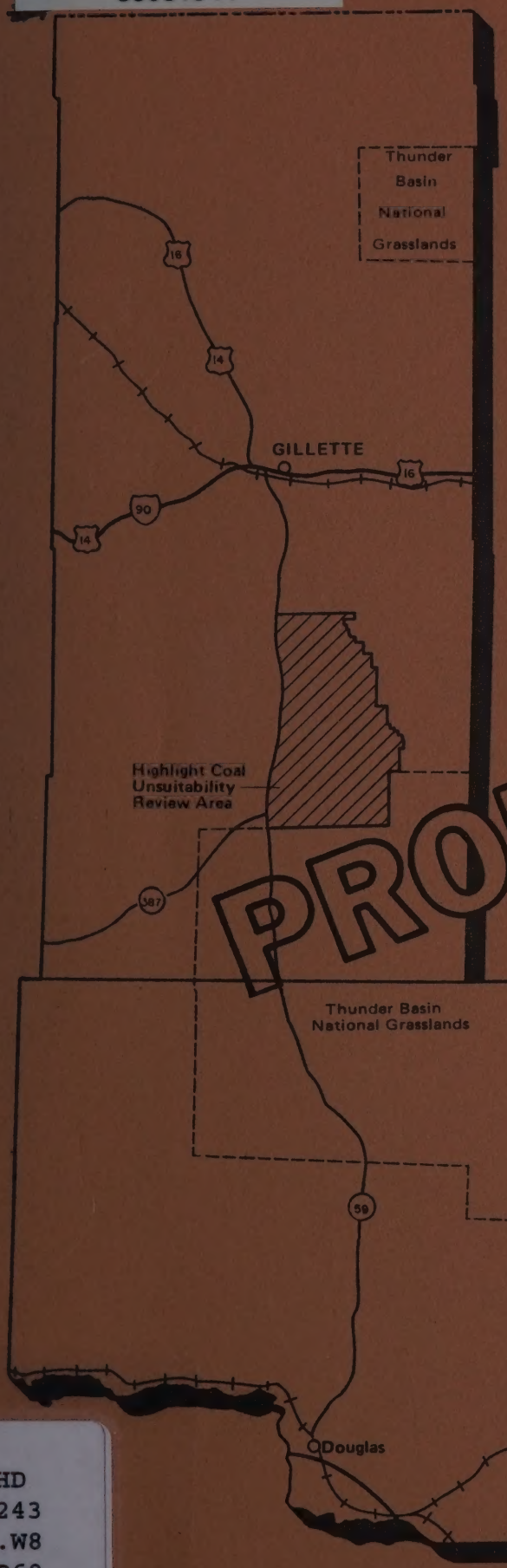
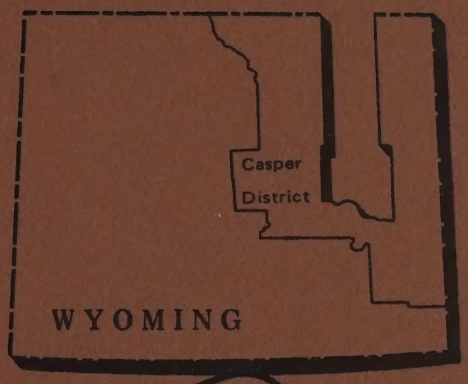
## Determinations of Unsuitability for Coal Development

Eastern Powder River Basin Area - Casper District

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May 1, 1979

# PROPOSED REVISIONS TO THE EASTERN POWDER RIVER MFP LAND USE DECISIONS

## CHAPTER 1

## SUMMARY

### INTRODUCTION

This document is a draft planning supplement to the Eastern Powder River Management Framework Plan (MFP). The land use planning decisions contained herein are proposed decisions that would not become final or adopted until after 1) the Secretary of the Interior has made a decision on the coal unsuitability criteria used in preparing this supplement; and 2) an opportunity for public hearings, if requested by any person(s) who will or may be adversely affected by one or more of the proposed decisions, if adopted, has been provided. Also, should the Secretary decide to change any of the coal unsuitability criteria, the proposed decisions are accordingly subject to change, before they would be made final and adopted.

This planning supplement revises the multiple use decisions specifically addressing coal development in the Eastern Powder River. The original planning decisions under which the coal program is currently managed are part of the 1977 Management Framework Plan (MFP) for the Eastern Powder River Planning Unit. Map 1-2 shows the original MFP decisions for the planning unit.

Revisions to MFP coal decisions reflect new information and are consistent with recent statutory requirements that affect coal development on federal lands. The Federal Land Policy and Management Act (FLPMA) of 1976 requires that any coal leasing be based on a comprehensive land use plan or land use analysis. The Surface Mining Control and Reclamation Act (SMCRA) of 1977, commits the Secretary of the Interior to specific planning requirements. Specifically Section 522(b) of SMCRA directs the Secretary to conduct a review of federal land to determine whether classes of federal lands should be designated unsuitable for surface coal mining operations or adverse surface effects of underground coal mining.

A principal part of the process for implementing the requirements of the federal land review mandated by SMCRA involves applying 24 interim coal unsuitability criteria to known recoverable coal resource areas. These criteria, developed by the Secretary, address resource considerations such as wilderness areas, scenic areas, natural and historic values, wildlife species and habitat, water resources, flood plains, alluvial valley floors, and prime farmlands. See Table 1-1 for a listing of the unsuitability criteria.

The revisions reflect both the application of the coal unsuitability criteria and other multiple use considerations. Chapter 2 contains the specific findings (narrative and maps) related to application of the criteria.

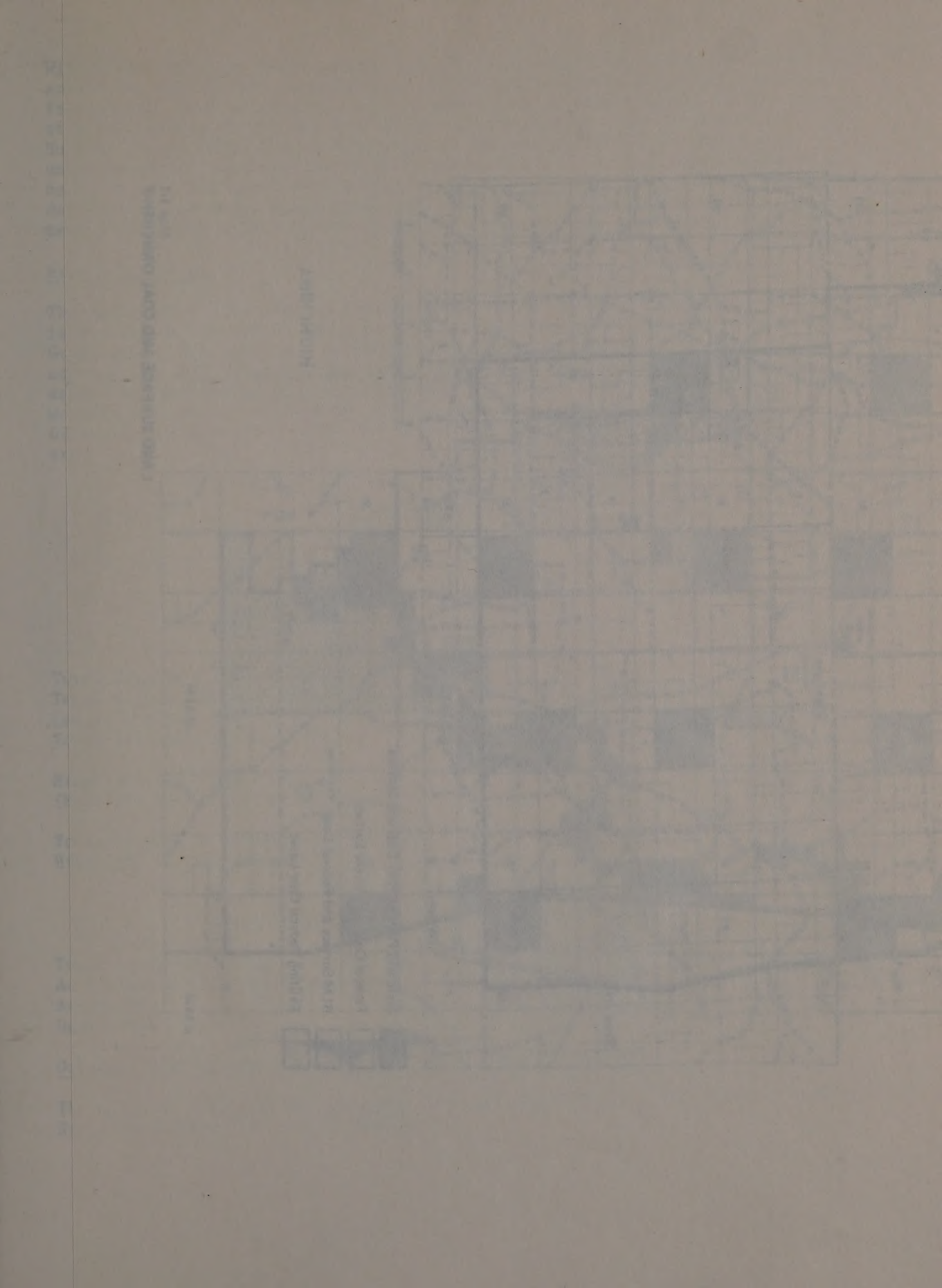
This planning supplement pertains only to the 134,000 acres in the Highlight Review area (Map 1-1) of the Eastern Powder River Planning Unit.

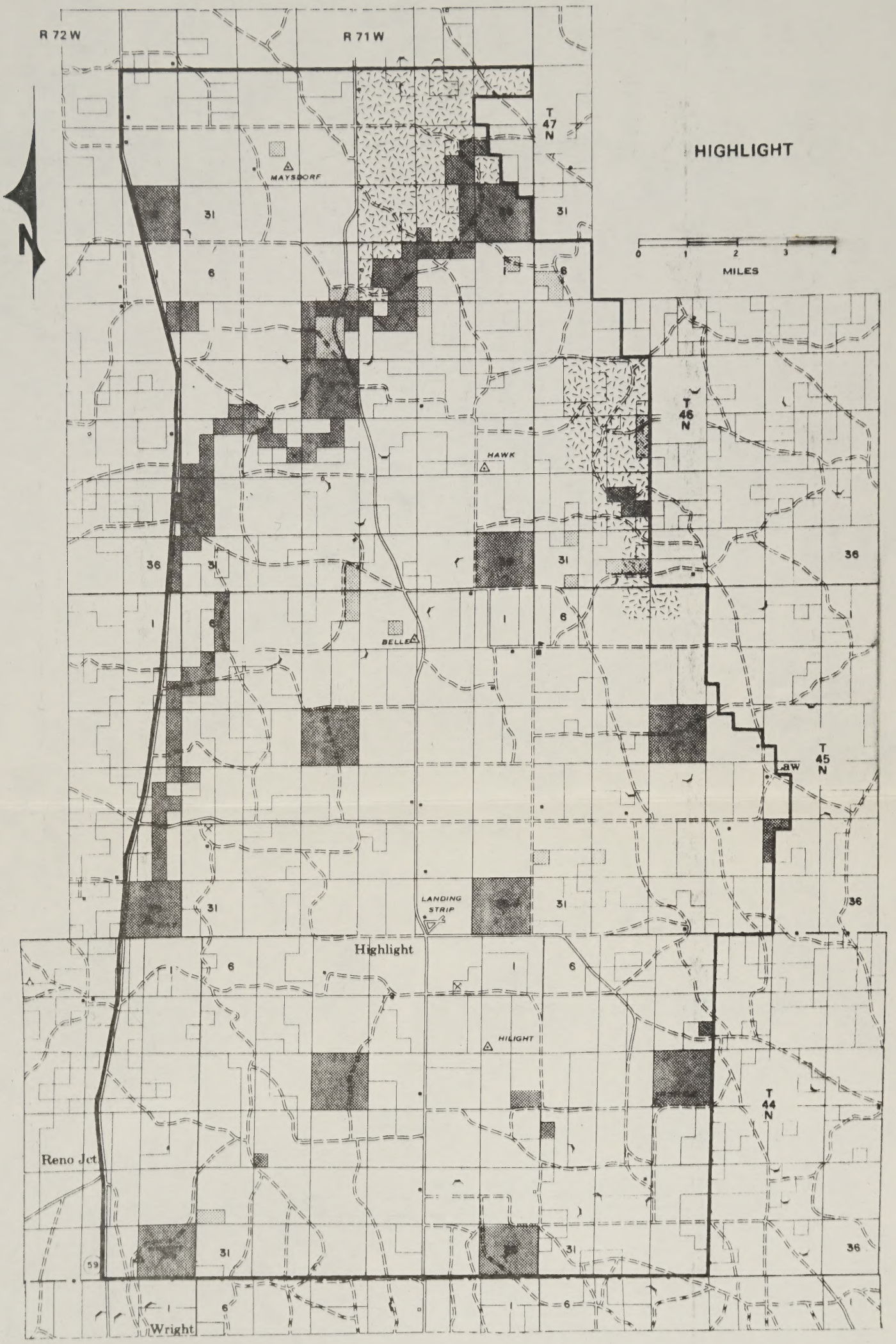
TABLE 1-1

Unsuitability Criteria

1. Federal land systems, i.e., National Park System, National Wildlife Refuge System, National System of Trails, and the like.
2. Rights-of-way and easements.
3. Buffer zones along rights-of- way and adjacent to communities and buildings.
4. Wilderness study areas.
5. Scenic areas.
6. Lands used for scientific studies.
7. Historic lands and sites.
8. Natural areas.
9. Federally listed threatened and endangered species.
10. State listed endangered species.
11. Bald and golden eagle nests.
12. Bald and golden eagle roost and concentration areas.
13. Falcon cliff nesting sites.
14. High interest migratory birds.
15. High interest State resident fish and wildlife.
16. Wetlands.
17. Floodplains.
18. Municipal watersheds.
19. National resource waters.
20. State lands unsuitable (not available at this time).
21. State proposed criteria (not available at this time).
22. Prime farmlands.
23. Alluvial valley floors.
24. Reclaimability.

Coal unsuitability criteria will be applied to the remaining known recoverable coal resource areas (KRCRA) within the planning unit no later than fiscal year 1982, at which time the Eastern Powder River MFP is scheduled for revision. However, this revision could occur sooner, should priorities for land use or development change.






State and Private (Fee) Coal and Surface

Federal Coal and Private Surface

BLM Surface and Federal Coal

Existing Federal Coal Lease

Map 1-1
LAND SURFACE AND COAL OWNERSHIP

Within the Highlight Review area, this planning supplement identifies areas acceptable for further consideration should the Secretary adopt and implement a federal coal leasing program. The determination of unsuitability is the first step in a process which may lead to formal designations, by the Office of Surface Mining (OSM), of certain areas as unsuitable for either surface or underground coal mining. No specific sites (tracts) for coal development have been, or will be, identified in this planning supplement. Identification and delineation of tracts would occur only after adoption of a federal coal management program and a Secretarial decision to proceed with new federal coal leasing.

## Area Description

The Highlight Review area is located in southeast Campbell County (Map 1-1). It is bounded on the south, and a portion of the east by the Thunder Basin National Grasslands. The remainder of the east boundary corresponds with the eastern edge of the coal outcrop. The north boundary was established primarily to assure enough acreage in the review area for a fair test of the criteria. The western boundary is Highway 59 running from Reno Junction to the south to Gillette to the north. Table 1-2 summarizes the status of the Highlight Review area.

TABLE 1-2
HIGHLIGHT REVIEW AREA
CASPER DISTRICT, WYOMING

AREA STATUS SUMMARY

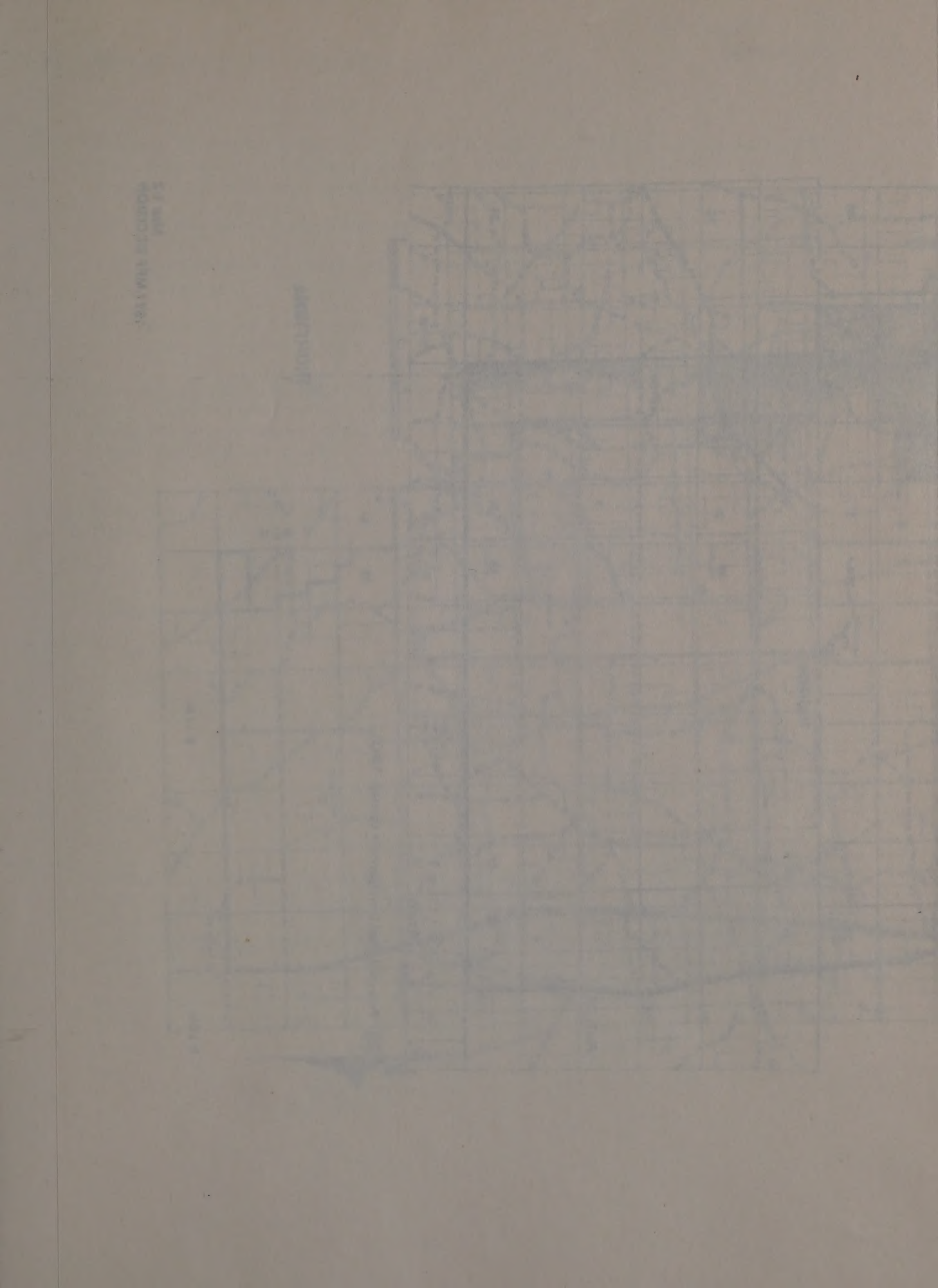
| | Acres | (Billion) Tons |
|---|---|---|
| Total Highlight Review Area | 134,000 | --- |
| Total High & Moderate Potential Coal | 82,000 | 12.3 |
| Leased and Fee Coal | 18,000 | 2.6 |
| Total Available Federal Coal | 64,000 | 9.7 |
| Highlight Oil & Gas Field (Multiple Use Trade-off Area) | 26,920 | 4.1 |
| Total Available Federal Coal Outside Highlight Oil and Gas Field | 37,080 | 5.6 |

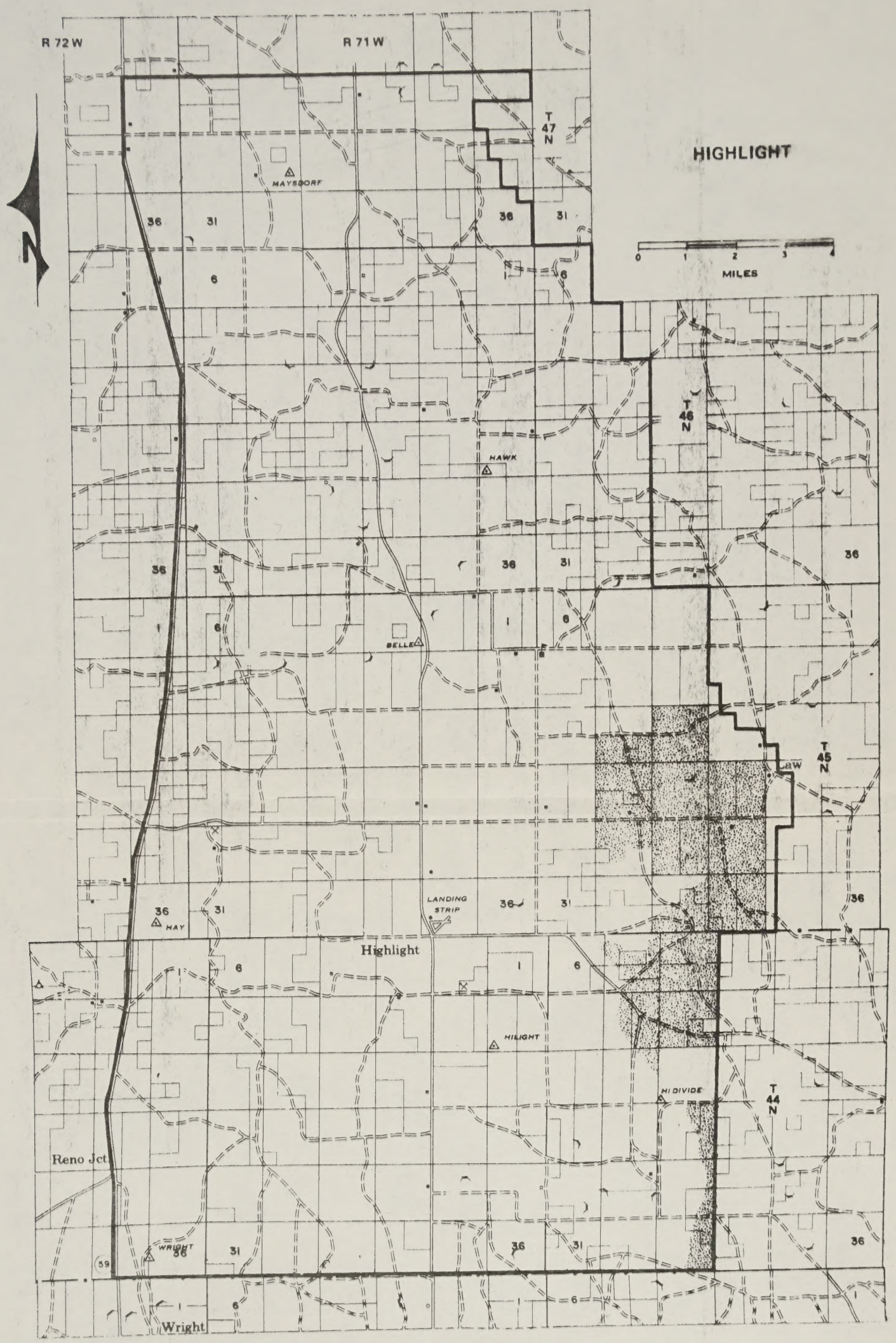
RESULTS OUTSIDE MULTIPLE USE TRADE-OFF AREA

| | | |
|---|---|---|
| Total Available Before Criteria | 37,080 | 5.6 |
| Acceptable Pending Study | 18,830 | 2.8 |
| Acceptable | 18,250 | 2.8 |
| Unsuitable | 0 | 0 |

## Original Coal Planning Decisions for East Powder River MFP

The original multiple use decisions for coal development in the Eastern Powder River Basin (Map 1-2) are as follows:






Potential Coal Development through 1983

Map 1-2
1977 MFP DECISION

MULTIPLE USE DECISIONS - 1977 MFP

1. Potential Coal Lease Areas.

Subject to the findings of a regional coal environmental statement, BLM will propose a coal leasing schedule through 1983 for 26,500 acres of federal coal reserves containing about 3 billion tons of coal.

The coal to be analyzed for potential leasing falls into two categories:

a. Uncommitted economic coal that BLM has identified for potential new leasing.

b. Economic coal reserves tied closely to existing operations or mining plan proposals subject to BLM decisions within the next five years.

Category 1 contains approximately 19,200 acres and 2.2 billion tons of identified economic coal reserves. These areas are located in southeastern Campbell County and a small portion of northeastern Converse County. The legal description of the areas in category 1 are as follows:

T. 41 N., R. 69 W.,
part of: Sec. 18.
T. 41 N., R. 70 W.,
part of: Secs. 1,2,3,4,5,7,8,9,10,11,17,18,21,27,28,29,30,33,34.
T. 41 N., R. 70 W.,
all of: Secs. 6,19.
T. 42 N., R. 69 W.,
part of: Sec. 19.
T. 42 N., R. 70 W.,
part of: Secs. 8,9,13,27,28.
T. 43 N., R. 70 W.,
part of: Secs. 4,5,7,8,18,30,32,33.
T. 43 N., R. 70 W.,
all of: Secs. 9,19,29,31.
T. 44 N., R. 70 W.,
part of: Secs. 3,4,5,8,9,10,17,21,22,26,27,33,34,35.
T. 45 N., R. 70 W.,
part of: Secs. 18,21,22,27,29,33,34.

Category 2 contains approximately 7,300 acres with an estimated 800 million tons of coal. These areas range from northcentral Campbell County south to the Campbell-Converse County line. These areas will be analyzed for leasing through 1983 because they are either associated with coal reserves included in existing operations or were previously committed to development and involved in mining proposals subject to decisions under the Department's short term criteria leasing policy. The legal description of the areas in category 2 are as follows:

T. 40 N., R. 71 W.,
Sec. 2, NE¼, E½W½, SE¼SW¼, N½SE¼.
T. 41 N., R. 70 W.,
Sec. 20, E½, E½W½;
Sec. 21, N½NE¼, SW¼NE¼, W½, N½SE¼, SE¼SE¼;
Sec. 28, W½NE¼, W½, S½SE¼;
Sec. 29, N½, NW¼SW¼, N½SE¼.
T. 41 N., R. 71 W.,
Sec. 27, S½SW¼, SW¼SE¼;
Sec. 28, SE¼SE¼;
Sec. 34, SE¼NE¼, NE¼SE¼;
Sec. 35, W½SW¼, SE¼SW¼.
T. 47 N., R. 71 W.,
Sec. 5, NW¼NW¼, S½NW¼, SW¼;
Sec. 6, All.
T. 47 N., R. 72 W.,
Sec. 1, E½NE¼.
T. 48 N., R. 71 W.,
Sec. 29, W½;
Sec. 30, All;
Sec. 31, N½, S½SW¼.
T. 51 N., R. 72 W.,
Sec. 1, NW¼NW¼, S½NW¼, SW¼;
Sec. 2, NE¼, N½NW¼, SE¼NW¼;
Sec. 3, N½NE¼;
Sec. 12, N½NW¼, SW¼NW¼,
T. 52 N., R. 72 W.,
Sec. 27, E½NW¼;
Sec. 29, S½S½;
Sec. 32, N½;
Sec. 34, SE¼NE¼, E½SE¼, NE¼SW¼;
Sec. 35, E½, E½SW¼, NW¼SW¼.
T. 52 N., R. 73 W.,
Sec. 3, W½NE¼, SE¼NW¼, NE¼SW¼, NW¼SE¼.
T. 54 N., R. 72 W.,
Sec. 2, NE¼NE¼.

This decision will be the proposed action to be analyzed in the environmental statement (ES) for the Eastern Powder River Basin. The ES will assess the site-specific effects of coal development proposals requiring BLM action through 1983 and the cumulative effects of coal development on the region up to 1990. The ES should be completed in 1978.

Rationale: An estimated 15 billion tons of federal coal have been committed to development within the planning unit. Specifically, in identified economic reserves, there are: 33 leases embracing 78,000 acres and about 8.7 billion tons of coal; 10 preference right lease applications for 10,000 acres and about 2.3 billion tons of coal.

In addition, there are 11 leases, 37 preference right applications and 12 prospecting permit extension applications outside identified economic reserves, but within the planning unit and covering another 123,000 acres. Development potential and tonnages are uncertain, but some will be developed due to individually favorable economic factors. There are large quantities of federal coal committed to development outside this planning unit, but within the Casper District.

Currently leased coal in the unit could probably support 19 mines, which could produce about 190 million tons a year by 1985. It is estimated that all of the "committed coal," i.e., current leases, preference rights plus prospecting permit extension applications, could support as many as 46 mines. (An average mine is assumed to include a coal reserve of 350 million tons being mined over a 40-year period involving a total of 3,500 surface acres.)

Socioeconomic impact and uncertainty about water and transportation caution against a large scale increase in federal coal leasing in the immediate future. This is supported by public comment, Planning Area Analysis, other sections of the MFP and other studies and reports. However, some of the existing leases and preference rights may not be logical mining units from either the environmental or economic standpoint. Also, new environmental standards may prove too costly to produce coal on some tracts. Offering additional high quality coal for lease in areas with few environmental and resource conflicts would help to alleviate such problems.

Socioeconomic impacts are a major concern in both this area and adjacent planning areas. Some local government planners and many citizens have recommended a "go slow" approach to new coal leasing to allow communities time to better accommodate the social and economic effects of coal development. The Wyoming Department of Agriculture has recommended no additional coal leasing through 1983.

On the other hand, several interests have recommended unlimited leasing. The planning decision attempts to strike a balance between the various recommendations. Areas identified for coal leasing through 1983 were selected with social and economic impacts foremost in mind. The areas are roughly halfway between Douglas and Gillette. They are in the vicinity of the new community of Wright, which developers claim should be able to accommodate about 6,000 people by 1985--the earliest the new coal leases could be developed.

The area around Gillette, identified for no coal development, would remain closed. Surface values for community expansion, open space and a buffer zone exceed present mineral values, considering the extent of known economic coal reserves in the planning unit.

All tracts identified in the planning decision lie in or adjacent to areas proposed for development or in which interest has been expressed. Major conflicts with other resource values--such as the oil and gas fields--were eliminated from the tracts identified for possible leasing. Also, much of the area suitable for leasing has the least wildlife impact in Campbell County, as indicated by the Wyoming Game and Fish Department.

The decision deletes 128,000 acres of economic coal reserves, proposed for development because of significant resource management values and potential environmental and socioeconomic impacts. Also, demand or need for more coal than the decision represents has not been demonstrated.

Revision Summary

Application of unsuitability criteria and multiple use considerations, in arriving at the proposed decisions in this planning supplement, has effected some change from our 1977 MFP Decision.

This change, primarily due to the review area boundaries being different from the area identified in the 1977 MFP, has not affected the amount of coal that is proposed to be acceptable for further consideration for coal development.

The coal that lies under the Highlight Oil and Gas field, approximately 4.1 billion tons, has been deferred for development until economic recovery of the oil and gas is complete.

The 1977 MFP decision identified 19,200 acres with an estimated 2.2 billion tons of coal for potential coal development, subject to the findings of a regional coal environmental statement. This proposed supplement to that 1977 decision identifies 37,080 acres, with an estimated 5.6 billion tons of coal, as acceptable for further consideration for development (See summary results in Table 1-5).

Definition of Area Classifications

The multiple use decisions included in this planning supplement appear in the Updated Plan section. The decisions are based on designations defined as follows:

1. Unsuitable for further consideration for coal development based on unsuitability criteria. Unsuitable areas are governed by one or more of the unsuitability criteria and are not amenable to criteria exceptions. An example would be an area that contains active bald and golden eagle nests (Criterion 11) and where disturbance during the breeding season cannot be controlled or nests cannot be moved (exceptions to Criterion 11).

2. Unacceptable for further consideration for coal development based on multiple use considerations. Unacceptable areas are exempted from coal development due to multiple-use resource considerations.

3. Acceptable for further consideration for coal development. Acceptable areas are broken down as follows:

   a. Acceptable with no likely problems--defined as areas acceptable for further consideration for coal development, which were not excluded by application of unsuitability criteria or multiple use considerations.

   b. Acceptable pending further study--defined as areas where known values exist but their relationship to the unsuitability criteria cannot be defined without further specific information.

Process

Incorporation of draft unsuitability criteria and development of the revised plan consisted of four discrete steps.

1. Draft unsuitability criteria, without exceptions, were applied to 64,000 acres of unleased, high and moderate potential federal coal. (See application summary--Table 1-3).

2. Multiple use decisions from the 1977 MFP were considered to determine whether areas were acceptable or unacceptable for further consideration due to multiple use conflicts.

3. On areas which were determined to be unsuitable by criteria and acceptable by multiple use, further assessment was done through consideration of the appropriate criteria exceptions (see Table 1-4).

4. Proposed Management Framework Plan supplement decisions were then developed and summarized in a brochure for public comment (see Map 1-3 Final Decision).

The decisions were framed in the following terms:

1. Unacceptable areas based upon multiple use considerations.

2. Acceptable areas for coal development.

3. Acceptable areas for coal development pending study.

No areas were identified as unsuitable after exceptions were considered. Although this planning process was applied to all federal coal, no decisions were made where there was an existing coal lease. The two leases within the review area have approved mining and reclamation plans.

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# TABLE 1-3
## UNSUITABILITY CRITERIA
## APPLICATION, WITHOUT EXCEPTIONS

| CRITERIA # | UNSUITABLE ACRES | UNSUITABLE BILLIONS OF TONS | ACCEPTABLE PENDING STUDY ACRES | ACCEPTABLE PENDING STUDY BILLIONS OF TONS | ACCEPTABLE ACRES | ACCEPTABLE BILLIONS OF TONS |
|---|---|---|---|---|---|---|
| 1. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 2. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 3. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 4. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 5. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 6. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 7. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 8. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 9. | 0 | 0 | 592 | 0.09 | 63,408 | 9.7 |
| 10. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 11. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 12. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 13. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 14 | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 15. | 0 | 0 | 14,696 | 2.0 | 49,304 | 7.7 |
| 16. | 3,769 | .5 | 2,840 | .4 | 57,391 | 8.6 |
| 17. | 4,900 | 0.7 | 0 | 0 | 59,100 | 9.0 |
| 18. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 19. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 22. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |
| 23 | 0 | 0 | 30,100 | 4.5 | 33,900 | 5.2 |
| 24. | 0 | 0 | 0 | 0 | 64,000 | 9.7 |

Note - No Totals Possible Because of Overlap

TABLE 1-4
HIGHLIGHT REVIEW AREA
CASPER DISTRICT, WYOMING

UNSUITABILITY CRITERIA SUMMARY
(Outside the Multiple Use Trade-off Area)

ACRES

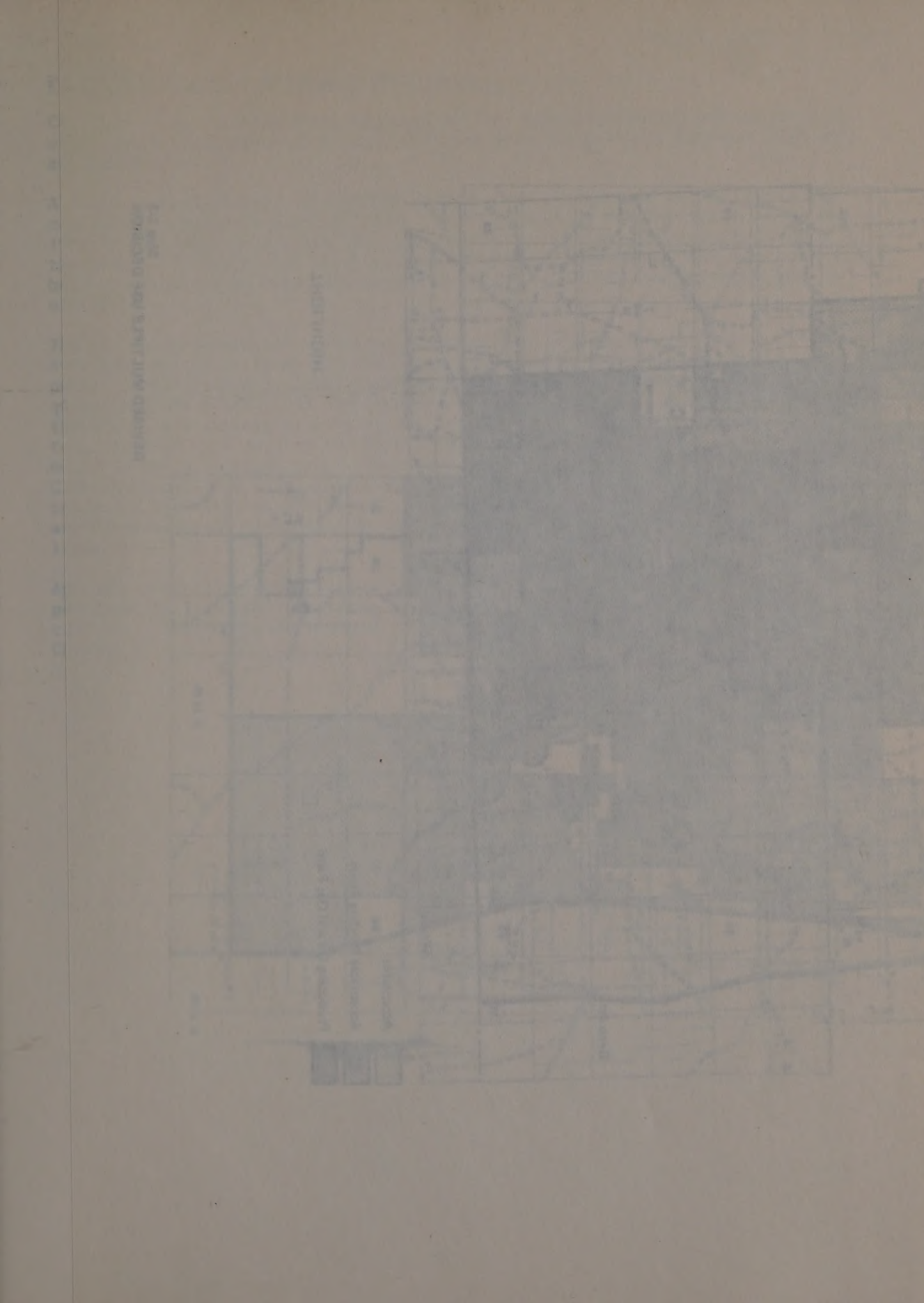
| Criterion | Unsuitable w/o excep. | Unsuitable with excep. | Acceptable Pending Study | Acceptable w/o excep. | Acceptable with excep. | Total |
|---|---|---|---|---|---|---|
| 9 | 0 | 0 | 592 | 36,488 | 0 | 37,080 |
| 15 | 0 | 0 | 13,276 | 23,804 | 0 | 37,080 |
| 16 | 1,513 | 0 | 2,059 | 33,508 | 35,021 | 37,080 |
| 17 | 2,300 | 0 | 0 | 34,780 | 37,080 | 37,080 |
| 23 | 0 | 0 | 17,536 | 19,544 | 0 | 37,080 |

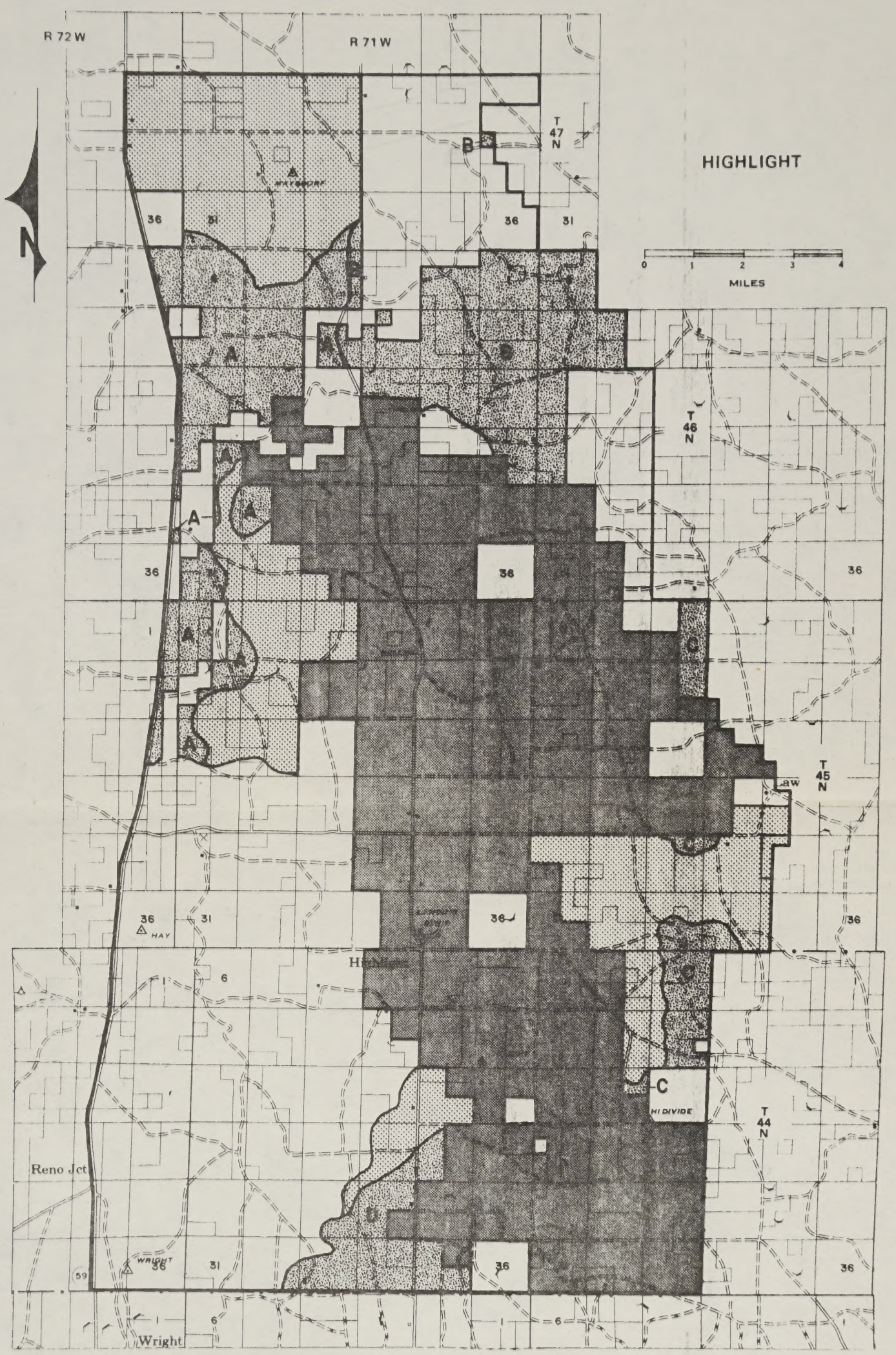
Note: No totals possible due to overlap.

TONNAGE

| Criterion | Unsuitable w/o excep. | Unsuitable with excep. | Acceptable Pending Study | Acceptable w/o excep. | Acceptable with excep | Total |
|---|---|---|---|---|---|---|
| 9 | 0 | 0 | .09 | 5.5 | 0 | 5.6 |
| 15 | 0 | 0 | 1.9 | 3.7 | 0 | 5.6 |
| 16 | .2 | 0 | .3 | 5.1 | 5.3 | 5.6 |
| 17 | .3 | 0 | 0 | 5.3 | 5.6 | 5.6 |
| 23 | 0 | 0 | 2.6 | 3.0 | 0 | 5.6 |

Note: No totals possible due to overlap.



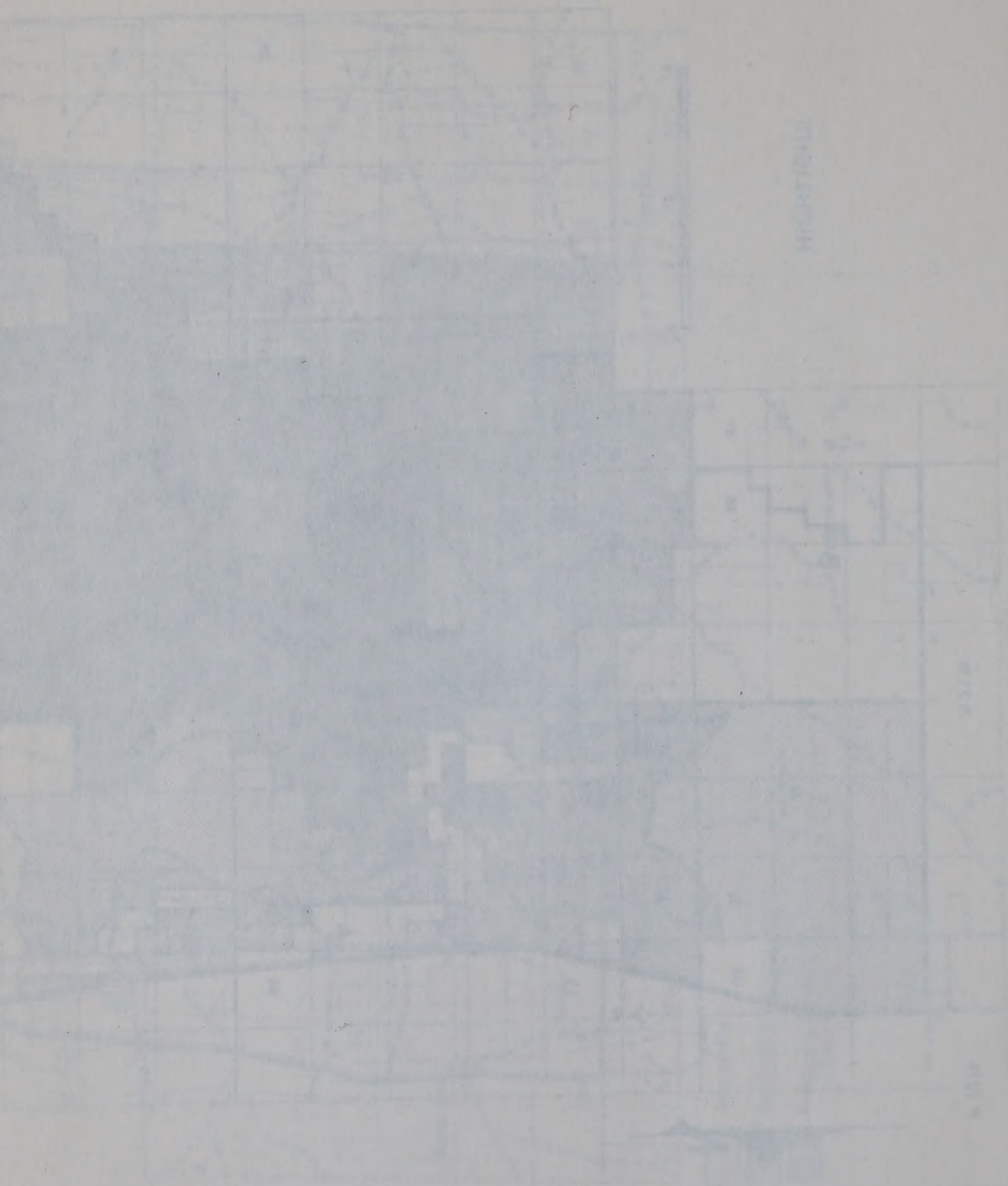



Acceptable

Acceptable Pending Study

Producing Oil and Gas Field

**Map 1-3**
**REVISED MULTIPLE USE DECISION**



Public Participation and Agency Coordination

Certain of the criteria required coordination, consultation or concurrence with other federal and state agencies. Contacts were initiated in December 1978 and are continuing.

A draft summary of the proposed MFP decision was distributed to the public for review and comment on March 9, 1979. A public meeting was held on March 28, 1979 in Gillette, to explain the process and the results of the application to the public. Prior to and after the public meeting, one-on-one meetings were held with various interested energy companies, landowners, and city and county officials.

The public (governmental agencies, organizations, and industry) expressed concern over the short time frame for their participation in the process. Most of the public comment has been critical of this exercise. The Governor of Wyoming has questioned the adequacy of the inventory data, the level of consultation with the state, and the application of the criteria. Industry has challenged the total process with respect to their involvement, economic considerations, and multiple use priorities (i.e., coal versus other resource values). The Sierra Club has questioned the legality of the process, the Wyoming Outdoor Council is concerned with over-application of the exceptions, and land or surface owners are concerned with the impact of the federal determinations on adjacent private lands.

Appendix 1 contains the attendance list, a brief summary of the public meeting, and pertinent written public comment, regarding application of the unsuitability criteria. Public comments where they relate to specific criteria, are contained in Chapter 2.

## UPDATED EASTERN POWDER RIVER PLAN

The proposed revision to the existing multiple use decision for coal development is listed below with rationale. When the final decision is made, identified acceptable areas may be considered for coal development.

### Proposed Multiple Use Decision

1. Unacceptable areas based upon multiple use considerations. Coal development within the Highlight Oil and Gas field, as shown on Map 1-3, will be postponed until economic recovery of the oil and gas is complete. This includes about 31,000 acres with some 4.6 billion tons of estimated coal reserves.

2. Acceptable areas for further consideration for coal development. Acceptable areas, determined from application of the interim unsuitability criteria, as well as multiple use considerations, will be given further consideration for coal development. These are displayed on Map 1-3 and include about 15,000 acres with some 2.2 billion tons of estimated coal reserves.

3. Acceptable pending further study. From application of the interim unsuitability criteria, as well as multiple use considerations, areas were determined to be "acceptable pending further study." These are also displayed on Map 1-3. Specifically, areas A, B, C, and D need further study of possible alluvial valley floors. Areas A and B also need further study to delineate sage grouse strutting and nesting grounds and to determine the possible existance of the endangered black-footed ferret in a known prairie dog town. This category includes about 18,000 acres with some 2.7 billion tons of estimated coal reserves.

The above acceptable area categories total about 35,000 acres with some 4.9 billion tons of estimated coal reserves. They would be subject to the following if the Secretary decides new coal leasing is necessary:

a. delineation of alluvial valley floors (areas A, B, C, and D);

b. wildlife studies (areas A and B);

c. tract delineation, ranking, and selection;

d. findings of an environmental assessment.

### Rationale

There is no need to create conflict over development of different energy minerals because of the vast quantities of coal available for development within the review area. This view is consistent with the 1977 MFP decision which was supported by comments from the oil and gas industry and the general public.

No areas were determined to be unsuitable for coal development after applying both the interim unsuitability criteria and the exceptions to the criteria. However, as noted under part 3 of the decision, some areas require further

study. An early and unusually severe winter interfered with final application of the unsuitability criteria dealing with alluvial valley floors, high interest state resident fish and wildlife, and federally listed threatened and endangered species. The necessary work will be accomplished during the upcoming field season, following which BLM will complete the unsuitability criteria application to areas A, B, C, and D.

Summary Results

The summary results of the application of the coal unsuitability criteria and multiple use considerations are shown in Table 1-5.

*Surface Owner Consultation

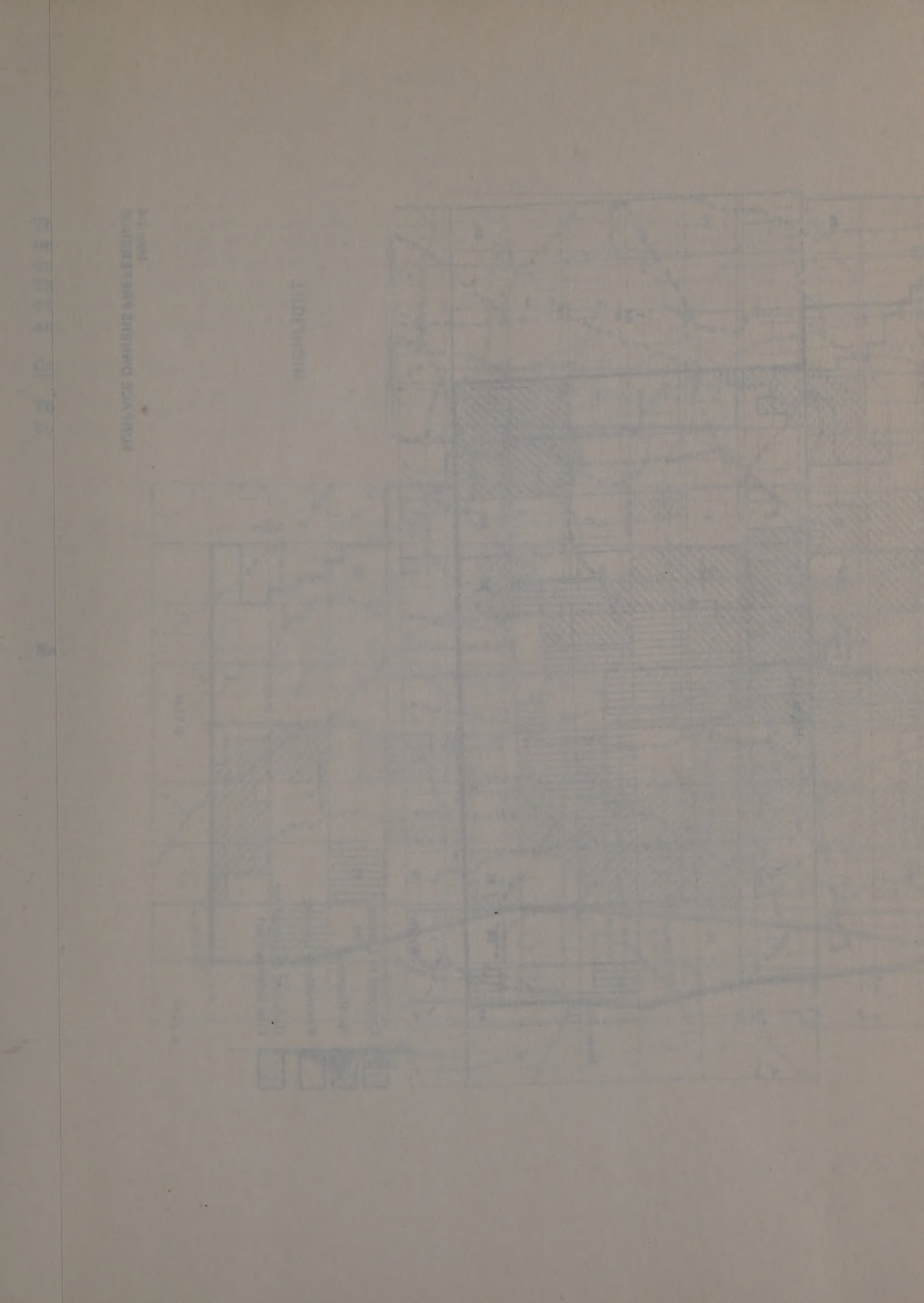
Fifty-three individual landowners were identified in the review area and were sent a letter requesting their preference for or against leasing of federal coal under their private surface.

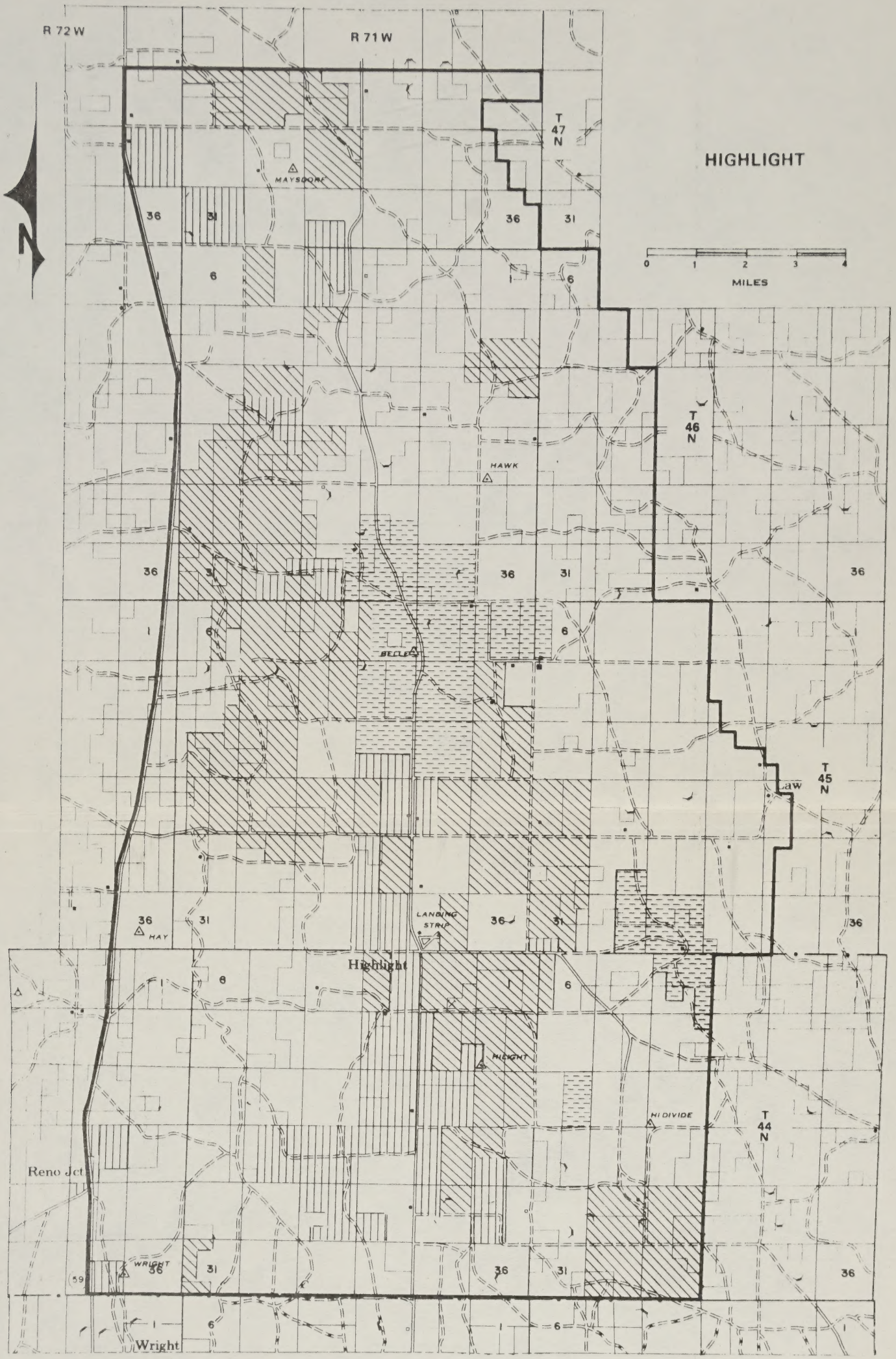
Forty responses were received (75%). Thirteen of those responses indicated preference against leasing. No response was considered favorable to leasing at this time (See Map 1-4).

TABLE 1-5
HIGHLIGHT REVIEW AREA
CASPER DISTRICT, WYOMING

UNSUITABILITY CRITERIA SUMMARY
OUTSIDE THE MULTIPLE USE TRADE-OFF AREA

| ACRES | | | | | |
|---|---|---|---|---|---|
| Unsuitable | | Acceptable Pending Study | Acceptable | | Total |
| w/o except. | with except. | | w/o except. | with except. | |
| 3,813 | 0 | 18,830 | 14,437 | 18,250 | 37,080 |
| TONNAGE (Billions of Tons) | | | | | |
| .6 | 0 | 2.8 | 2.2 | 2.8 | 5.6 |





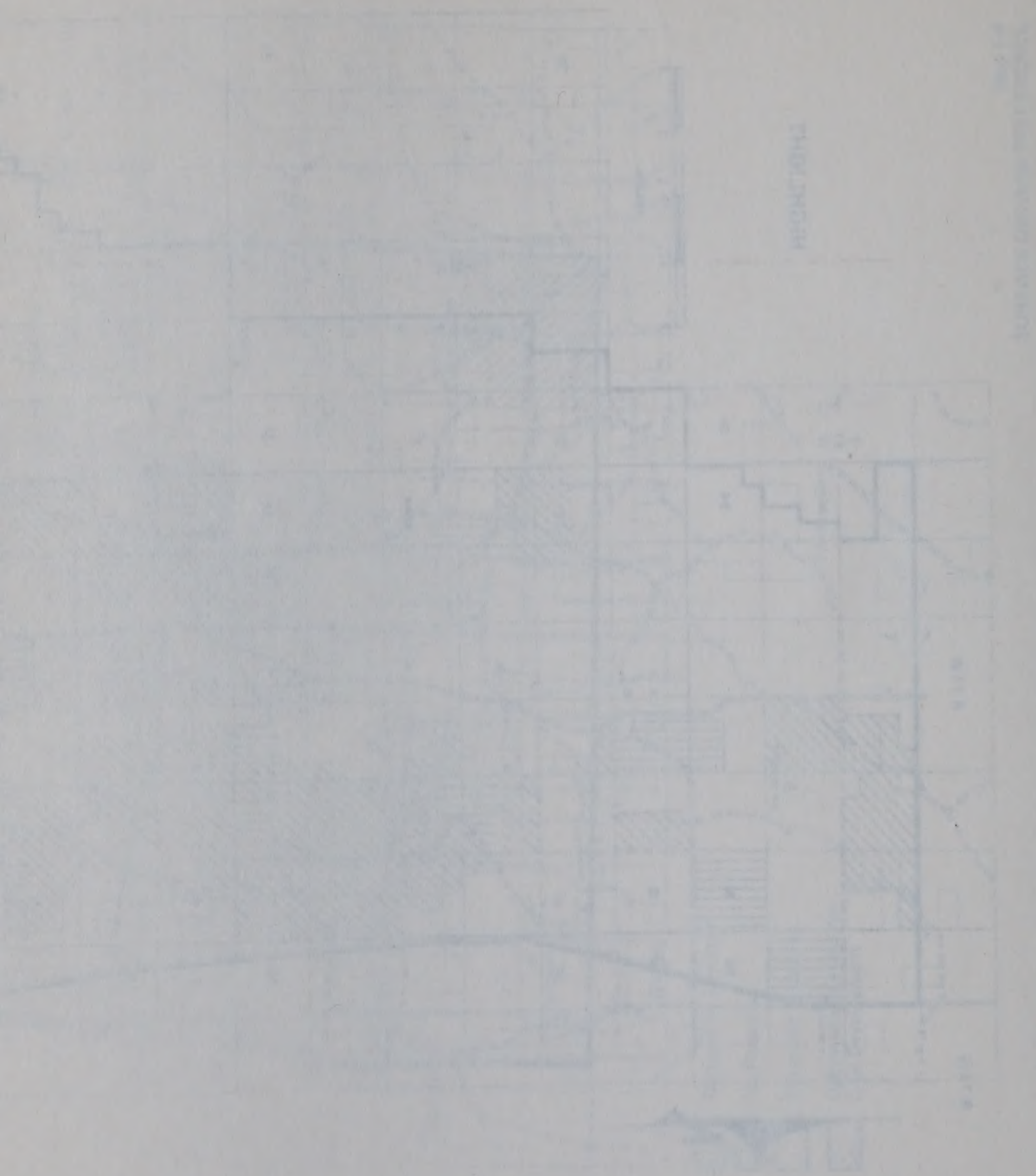

Opposed to Leasing

No Response

Favorable to Leasing

Optioned or Leased for Coal Development

Map 1-4
SURFACE OWNERS PREFERENCE



# CHAPTER 2

## Application of the Unsuitability Criteria
## Highlight Review Area
## East Powder River Planning Unit
## Casper District, Wyoming

This chapter includes narratives and maps which show the results of applying the unsuitability criteria. The following narratives for each criterion address the unsuitability determinations, data sources, and application of the exceptions. The associated maps are located at the end of this chapter. They include individual maps for applicable criteria and a map showing coal resource occurrence and coal development potential.

### Coal Resources

The coal resources for the Highlight Review area tonnage calculation, applicable to each criterion, were calculated as follows:

A. Resource base figures on maximum strip depth of 500 feet;

B. High potential for development coal (lower limit)--4.5 cubic yards overburden/ton of coal.

C. Moderate potential for development coal (lower limit)--6.5 overburden/ton of coal.

Note: 4.5 cubic yards overburden/ton of coal = straight ratio in overburden thickness to seam(s) thickness of 5:1. 6.5 cubic yards overburden/ton of coal = straight ratio in overburden thickness to seam(s) thickness of 7.2:1

Since all areas of high and moderate potential were to be considered for this study, their acreages were lumped together, and tonnage figured as follows:

a. Average thickness for high and moderate = $\frac{71 + 100}{2}$ or 85 feet

b. Tons of high and moderate reserves =

$\frac{1{,}760 \text{ ton}}{\text{ac. ft.}}$ x acreage (H&M) x average thickness for H&M (85 feet).

1. Federal Land Systems

CRITERION

All federal lands included in the following land systems or categories and an appropriate buffer zone, if necessary, as determined by the land management agency, shall be considered unsuitable for coal mining: National Park System, National Wildlife Refuge System, National Systems of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, and other federally purchased recreation lands, Custer National Forest, and federal lands in incorporated cities, towns, and villages. All federal lands which are recommended for inclusion in such systems or categories by the Administration in legislative proposals submitted to the Congress or which are required by statute to be studied for inclusion in such systems or categories shall be considered unsuitable for coal mining.

Process

Status plats of the federal lands within the review area were examined.

Findings

There are no National Park System, National Wildlife Refuge System, National Systems of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, or other federally purchased recreation lands, Custer National Forest and federal lands in incorporated cities, towns, and villages located in the review area.

Data Source

1. The status was determined through BLM records.
2. The data was adequate.

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres and 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued for underground coal mining within the Custer National Forest with the consent of the Department of Agriculture.

The exception was not applied.

PUBLIC COMMENT

No public comments were received relative to application of this criterion.

2. Rights-of-Way and Easements

CRITERION

Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial industrial, public purposes, or agricultural crop production over federally-owned surface shall be considered unsuitable for coal mining.

Process

Land status maps and Master Title Plats were checked to determine if any of the items in the criterion were applicable.

Findings

There are no rights-of-way or easements over federally-owned surface in the review area.

Data Source

BLM planning documents
Energy Resources Map, Wyoming Geological Survey, 1975
USGS quad maps

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may include such areas if the land management agency determines that:

1. Coal development (e.g. underground mining) will not interfere with the purpose of the right-of-way or easement, or

2. The right-of-way or easement was granted for mining purposes, or

3. The right-of-way or easement was issued for a purpose for which it is not being used, or

4. The parties involved in the right-of-way or easement agree to leasing, or

5. It is impractical to exclude such areas due to the location of coal and method of mining and such areas can be protected through use of appropriate stipulations.

The exceptions were not applied.

PUBLIC COMMENT

No public comments were received relative to the application of this criterion.

3. Buffer Zones Adjacent to Rights-of-Way, Communities, and Buildings

CRITERION

Federal lands affected by section 522(e) of the Surface Mining Control and Reclamation Act shall be considered unsuitable for coal mining. This includes lands within 100' outside of the right-of-way of a public highway or within 100' of a cemetery and within 300' of an occupied building, school, church, community or institutional building or public park or within 300' of an occupied dwelling.

Process

The criterion was applied using Master Title Plats, Historical Index and USGS 7½ minute quadrangle maps.

Findings

There are no public highways within the Highlight Review Area.

There are no cemeteries within the review area nor are there any known occupied buildings.

Data Source

BLM planning documents, USGS quad maps

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may include mine access roads or haulage roads that join the right-of-way for a public road. Additionally, the Surface Mining Regulatory Authority may issue a permit to have public roads relocated. Finally, owners of occupied buildings may give permission to mine near the buildings.

The exception was not applied.

PUBLIC COMMENT

No public comments were received relative to application of this criterion.

4. Wilderness Study Areas

CRITERION

Federal lands designated as wilderness study areas shall be considered unsuitable for coal mining while under review by the Administration and the Congress for possible wilderness designation. For any federal land which is to be leased or mined prior to completion of the wilderness inventory by the land management agency, the environmental impact statement (or analysis) of the lease sale or mine plan must consider whether the land possesses the characteristics of a wilderness study area. If the findin is affirmative, the land shall be considered unsuitable for coal mining.

Process

The criterion applies only to lands designated as wilderness study areas. Areas which have not been inventoried or which have been identified only as roadless should be flagged as being of uncertain status. Available information in the wilderness inventory was analyzed to make the judgement.

Findings

There are no designated wilderness study areas and no land possessing the characteristics of a wilderness study area within the review area.

Data Source

The staff of the Casper District BLM conducted a wilderness inventory during the winter of 1978-79. The quality of the data is believed to be adequate.

Unsuitability Determination

No areas were determined to be unsuitable. The entire area was determined acceptable with no likely problems.

EXCEPTION

Issuance of noncompetitive coal leases and mining on leases may proceed if authorized by the Wilderness Act and the Federal Land Policy and Management Act of 1976.

The exception was not applied.

PUBLIC COMMENT

No public comments were received relative to application of this criterion.

5. Scenic Areas

CRITERION

Scenic federal lands designated by visual resource management analysis as Class I or II (areas of outstanding scenic quality and/or high visual sensitivity) but not currently on the National Register of Natural Landmarks shall be considered unsuitable for coal mining.

Process

Planning and environmental analysis documents were examined for designated scenic (Class I or II) areas.

Findings

There are no federal lands within the Highlight Review area designated by visual resource management analysis as Class I or II.

All federal lands are Class IV, i.e. contrasts may attract attention and be a dominant feature of the landscape in terms of scale: however, the change should repeat the basic element of form, line, color, and texture inherent in the landscape.

Data Source

BLM planning system and Eastern Powder River Regional Coal Environmental Statement.

Unsuitability Determination

The entire review area was determined to be acceptable with no likely problems.

EXCEPTION

A lease may be issued if the land management agency determines that coal mining will not significantly diminish or adversely affect the scenic quality of the designated area.

The exception was not applied.

PUBLIC COMMENT

None.

6. Lands Used for Scientific Study

CRITERION

Federal lands under permit by the land management agency, and being used for scientific studies involving food and fiber production, natural resources or technology demonstrations and experiments shall be considered unsuitable for coal mining.

Process

This criterion applies only to federal surface under permit by BLM or other federal land management agency. Planning documents and Bureau records were examined.

Findings

There are no federal lands within the Highlight Review area under permit by a land management agency that are being used for scientific studies involving food and fiber production, natural resources or technology demonstrations and experiments.

Data Source

URA, BLM Records

Unsuitability Determination

The entire review area has been determined to be acceptable with no likely problems.

EXCEPTION

A lease may be issued:

1. With the concurrence of the principal scientific user or agency, or

2. Where the mining could be done in such a way as not to jeopardize the purpose of the study as determined by the land management agency.

The exceptions were not applied.

PUBLIC COMMENT

No public comments were received relative to application of this criterion.

7. Historic Lands and Sites

CRITERION

All districts, sites, buildings, structures, and objects of historic, architectural, archeological, or cultural significance which are included in or eligible for inclusion in the National Register of Historic Places, and an appropriate buffer zone around the outside boundary of the property (to protect the inherent values of the property that made it eligible for listing in the National Register) as determined by the land management agency, inconsultation with the Advisory Council on Historic Preservation or by procedures approved by the Advisory Council, shall be considered unsuitable for coal mining.

Process

The criterion was applied to existing data collected during 1977-78 for the Eastern Powder River Coal Environmental Statement.

Findings

No known cultural or historic sites on unleased federal coal are listed in or eligible for the National Register of Historic Places.

Data Source

Reports from the State Archeologist's office
BLM Planning Documents

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

Leasing may be allowed, if the land management agency:

1. Determines, with the concurrence of the state that the site, structure, or object is of regional or local significance only, or

2. Determines, in consultation with the Advisory Council on Historic Preservation, the direct and indirect effects of coal mining to properties on or eligible for the National Register of Historic Places will not result in significant adverse impacts to the site, structure, or object.

The exceptions were not applied.

PUBLIC COMMENT

No public comments relative to the application of this criteria have been received.

The Wyoming Recreation Commission indicated they would await further site-specific statements before considering recommendations of cultural clearance.

8. Natural Areas

CRITERION

Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable for coal mining.

Process

"Designation" implies listing in the Federal Register. An area which has been nominated, identified in the MFP, or has good potential was placed in the "acceptable pending study" category. Existing lists of the above areas were examined.

Findings

No federal lands within the Highlight Review area have been designated as natural areas or National Natural Landmarks.

Data Source

National Landmarks Register

Unsuitability Determination

The entire review area has been determined to be acceptable with no likely problems.

EXCEPTION

Leasing may be allowed in these areas or sites if the land management agency determines that:

1. The area or site is of regional or local significance only with the concurrence of the State, or

2. The use of appropriate mining technology will result in no significant adverse impact to the area or site, or

3. The mining of the coal resource will enhance information recovery (e.g., paleontological sites).

The exceptions were not applied.

PUBLIC COMMENT

No public comments relative to the application of the criteria have been received.

9. Federally Listed Endangered Species

CRITERION

Legally designated critical habitat for federal threatened/endangered (T/E) plant and animal species, and habitat for federal T/E species which is determined by the Fish and Wildlife Service and the land management agency to be of essential value and where the presence of T/E species has been scientifically documented, shall be considered unsuitable for coal mining.

Process

The Casper District biologist contacted U.S. Fish and Wildlife Service for identification for critical habitat for endangered species within the Highlight Review area.

Findings

No known critical habitat for endangered species has been identified.

An area of potential habitat was identified and designated as acceptable pending study. This was based on historical records which indicated that black-footed ferrets once occurred within the area. Recent unconfirmed sightings of ferret-like animals in the area also indicated the potential for black-footed ferrets within the area.

Site 9-2-A is the only known area of potential habitat for endangered species.

Data Source

Office of Endangered Species, Billings Regional Office of the U.S. Fish and Wildlife Service.

Bureau Planning System - Campbell County.

Unsuitability Determination

Site 9-2-A, 592 acres are acceptable pending study for habitat for the black-footed ferret. The remaining 63,408 acres are acceptable with no likely problems.

EXCEPTION

Leasing may be allowed if, after consultation with the Fish and Wildlife Service, the land management agency determines the species habitat will not be adversely affected by coal development.

The exception was not applied.

PUBLIC COMMENT

No public comments relative to the application of the criteria have been received.

10. State-Listed Endangered Species

CRITERION

Habitats deemed critical or essential for plants and animal species listed by the State pursuant to state law as endangered or threatened shall be considered unsuitable for coal mining.

Process

There are no state listed T/E species, therefore, the criterion cannot be applied.

Findings

During a coordination meeting on 12/20/78 representatives of the Wyoming Department of Game and Fish stated that currently the State of Wyoming does not have a recognized list of threatened or endangered wildlife.

Data Source

Not applicable.

Unsuitability Determination

Not applicable.

EXCEPTION

A lease may be issued if, after consultation with the State, the land management agency setermines that the species will not be adversely affected by the coal development.

The exception was not applied.

PUBLIC COMMENT

No public comments relative to the application of the criterion have been received.

11. Bald and Golden Eagle Nests

CRITERION

Bald and golden eagle nests that are determined to be active and a buffer zone of land in a ¼-mile radius from the nests are areas which shall be considered unsuitable for coal mining, except that, during the nonbreeding season, mining can be conducted within the buffer zone. Consideration of availability of habitat for prey species shall be included in the determination of buffer zones.

Process

Contact was made with the Sheridan field office of the U.S. Fish and Wildlife Service. This office has conducted inventories within the coal occurrence areas of Wyoming.

Findings

No known bald or golden eagle nest sites were identified within the area.

Data Source

Sheridan field office of the U.S. Fish and Wildlife Service, Wyoming Department of Game and Fish, URA overlays.

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued if:

1. It can be conditioned in such a way, and during periods of time, that eagles will not be disturbed during breeding season, or

2. A permit or special approval is granted by the Fish and Wildlife Service to allow the eagle nest to be moved.

Buffer zones may be increased or decreased if the land management agency determines that the active eagle nests will not be adversely affected.

Exceptions were not applied.

PUBLIC COMMENT

No public comments concerning the application of this criteria have been received.

12. Bald & Golden Eagle Roost & Concentration Areas

CRITERION

Bald and Golden Eagle roost and concentration areas used during migration and wintering shall be considered unsuitable for coal mining.

Process

Inventory data was obtained from U.S. Fish and Wildlife Service.

Findings

Based on the information obtained it is determined there are no known sites in the review area.

Data Source

Wyoming Department of Game and Fish, Sheridan Field Research Station of the U.S. Fish and Wildlife Service.

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued if the land management agency determines that mining can be conducted in such a way, and during such periods of time, to ensure that eagles will not be adversely disturbed.

The exception was not applied.

PUBLIC COMMENT

No public comment relative to the application of this criterion was received.

13. Falcon Cliff Nesting Sites

CRITERION

Federal lands containing falcon cliff nesting sites with active nests and a buffer zone of federal land of ¼-mile radius from the nest to provide needed prey shall be considered unsuitable for coal mining, except that, during the nonbreeding season, mining can be conducted within the buffer zone. Consideration of availability of habitat for prey species shall be included in the determination of buffer zones.

Process

Current information from the U.S. Fish and Wildlife Service and the Wyoming Department of Game and Fish was examined.

Findings

There were no findings under this criterion.

Data Source

Field Research Office in Sheridan of the U.S. Fish and Wildlife Service; Wyoming Department of Game and Fish.

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued if:

1. The land management agency determines that coal mining will not adversely impact the nesting sites during the breeding season, or

2. Nest sites may be moved with concurrence of the Fish and Wildlife Service.

Buffer zones may be increased or decreased if the land management agency determines the active falcon nests will not be adversely affected.

No exceptions were applied.

PUBLIC COMMENT

No comments relative to the application of the criteria have been received.

14. Migratory Birds

CRITERION

Federal lands which are high priority habitat for migratory bird species of high federal interest on a regional or national basis, as determined jointly by the federal land management agency and the Fish and Wildlife Service, shall be considered unsuitable for coal mining.

Process

Contacts with U.S. Fish and Wildlife Service and Wyoming Department of Game and Fish identified areas of migratory bird use including raptor nest sites. However a list of migratory bird species of high federal interest was not prepared by the FWS or jointly concurred upon. Therefore at the present time, the application of the criterion cannot be completed.

Findings

Twenty-two thousand, nine hundred fifty-four acres of possible migratory bird habitat were identified from available URA information and Wyoming Department of Game and Fish data. However, the U.S. Fish and Wildlife Service has not prepared a list of high federal interest species and high priority habitat for this review area.

Data Source

U.S. Fish and Wildlife Service, Wyoming
Department of Game and Fish
URA overlays

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued where the land management agency, after consultation with the Fish and Wildlife Service, determines that coal mining will not adversely impact the migratory bird habitat during periods when such habitat is used by the species.

The exception was not applied.

PUBLIC COMMENT

No public comments relative to the application of this criterion have been received.

15. State Resident Fish and Wildlife

CRITERION

Federal lands which the land management agency and the State jointly agree are fish and wildlife habitat for resident species of high interest to the State and which are essential for maintaining these priority wildlife species shall be considered unsuitable for coal mining.

Such lands shall include:

- Active dancing and strutting grounds for sage grouse, sharp-tailed grouse, and prairie chicken.
- The most critical winter ranges for deer, antelope and elk.
- Migration corridors for elk.

Such lands may include appropriate buffer zones as determined jointly by the land management agency and the State.

Process

During a joint coordination meeting held in Cheyenne on December 20, 1978, representatives from Wyoming Department of Game and Fish and BLM district biologists jointly agreed upon species which would be considered as resident species of high interest to the State. Wyoming Department of Game and Fish supplied the district biologist with data that would identify areas of critical winter range, dancing and strutting grounds, and migration corridors.

Findings

The information provided by Wyoming Department of Game and Fish did not identify any critical winter range or elk migration routes. The only known areas of possible significant wildlife habitat are four sage grouse strutting grounds.

The following site areas are:

15-2-G, 15-2-H, 15-2-I and 15-2-J.

The sage grouse areas identified have not been fully documented to determine their current status.

Data Source

The state Office of the Wyoming Department of Game and Fish; maps supplied by Harry Harju and support staff.

Unsuitability Determination

Fourteen thousand six hundred ninety-six acres (2.2 billion tons) were determined acceptable pending further study. The remaining 49,304 acres (7.4 billion tons) are acceptable for further consideration for coal development.

EXCEPTION

A lease may be issued if:

1. It is demonstrated that complete mitigation is possible; or

2. Following discussions between the state wildlife agency and the federal land management agency, the federal land management agency determines that the species being protected will not be adversely affected by the mining activity.

No exceptions were applied.

PUBLIC COMMENT

No public comments concerning the application of the criteria have been received at this time.

16. Wetlands (Map 2-2)

CRITERION

Federal lands containing: 1) inland lakes, impoundments, and associated wetlands; 2) inland shallow, predominantly vegetated wetlands; or 3) riverine wetland systems, lower perennial and upper perennial systems with flow greater than 5 cubic feet per second and riparian zones in a "relatively undisturbed" state that are larger than one linear mile along a riverine system, shall be considered unsuitable for coal mining.

Process

The state office requested FWS to provide results of their wetland inventory.

Those categories which closely fit specifications contained in the criterion were used.

On November 13, 1978, BLM district staff and members of the Western Energy Land Use Team (USFWS) attended a meeting at Sheridan, Wyoming.

Based on the information presented it was determined that the district would utilize the U.S. Fish and Wildlife Service "Classifications of Wetlands and Deep-Water Habitats of the United States."

Wetlands were delineated by using USGS maps and district color infrared aerial photos. Once wetlands were identified the classification system was used to determine criterion application.

Findings

The following areas contain wetlands covered by the criterion.

| SITE | SITE | SITE | SITE |
|---|---|---|---|
| 16-2-V | 16-2-$G_1$ | 16-2-$Z_1$ | |
| 16-2-Z | 16-2-$J_1$ | 16-2-$R_1$ | 16-2-$D_2$ |
| 16-2-A | 16-2-$K_1$ | 16-2-$U_1$ | 16-2-$E_2$ |
| 16-2-$C_1$ | 16-2-$L_1$ | 16-2-$V_1$ | 16-2-$F_2$ |
| 16-2-$D_1$ | 16-2-$M_1$ | 16-2-$W_1$ | 16-2-$G_2$ |
| 16-2-$E_1$ | 16-2-$O_1$ | 16-2-$I_2$ | |
| 16-2-$F_1$ | 16-2-$K_2$ | | |

The following areas are considered possible wetlands to which the criterion may apply.

Site

16-2-$J_2$
16-2-$S^2$
16-2-W
16-2-X
16-2-$Q_1$
16-2-$T_1$

Data Source

U.S. Fish and Wildlife Service
URA data
USGS quad maps
Color infrared photos

Unsuitability Determination

1. Unsuitable for further consideration for coal development:

   3,769 acres ----------0.5 Billion tons.

2. Acceptable pending further study.

   2,840 acres ----------0.4 Billion tons.

3. Acceptable with no likely problems.

   57,391 acres ----------8.6 Billion tons.

   EXCEPTIONS

   A lease may be issued where the land management agency determines that:

   1. The use of appropriate mining or reclamation technology will not significantly affect the wetlands or will provide for complete restoration, or

   2. The wetlands contain no significant values for groundwater recharge, fish and wildlife habitat, recreation, or scientific study.

Process

Information was obtained from U.S. Forest Service Soil Surveys. In addition current mining operations were analyzed to determine whether, and where, mitigation was feasible or likely.

Findings

All areas determined unsuitable outside the multiple use decision area, were determined acceptable after application of the exceptions. In the

application of exception #1 it was felt that appropriate mining or reclamation techniques exist to prevent significant effects to the wetlands. An example used was the Cordero Mine Co. Belle Fourche channel relocation project in W-8385.

Exception 2 applied to other areas. This was based on information obtained from the U.S. Forest Service soil survey conducted within the area. This survey indicated that most ephemeral ponds have impermeable clay bottoms that preclude percolation of ponded water to the water table. In addition to impermeable clays, pond sediments most likely contain some evaporite deposits due to lack of external drainage.

All unsuitable areas, to which the exception could be applied, were determined acceptable.

Data Source

U.S. Forest Service
U.S. Fish and Wildlife Service
URA Data
U.S. Geological Survey Quad Maps
Color Infrared Photos

Unsuitability Determinations

Acceptable with no likely problems - 58,904 acres - 8.8 billion tons

Acceptable pending study - 2,840 acres - 0.4 billion tons

Unsuitable* - 2,256 acres - 0.3 billion tons

*Note: The unsuitable acres are within the multiple-use trade-off area and no exceptions were considered.

Stipulations

Since it is determined by the BLM that no significant wetland values would be lost due to surface mining, no stipulations are required to be forwarded into the activity planning stage.

PUBLIC COMMENT

No public comments have been received relative to the application of the criteria.

17. Floodplains

CRITERION

Riverine, coastal, and special floodplains (100-year recurrence interval) shall be considered unsuitable for coal mining.

Process

Floodplains have been delineated within both study areas according to boundaries plotted for HUD Flood Insurance Studies. These flood studies were obtained from the Campbell County Commissioners as floodplain designations traced on 7½ minute quads. These boundaries were transferred to the study area overlays (also 7½ minute quad scale) as areas being inundated during a 100 year precipitation event (P-100).

Findings

The following stream segments were identified from the HUD maps.

| STREAM | MAP CODE/LOCATION |
|---|---|
| Rattlesnake Creek ..... | ..... 17-2-E |
| Belle Fourche River .... | ..... 17-2-F |
| Hay Creek ..... | ..... 17-2-G |
| East Fork Coal Creek ... | ..... 17-2-H |
| West Fork Coal Creek ... | ..... 17-2-I |
| Kintz Creek ..... | ..... 17-2-J |
| Middle Fork Coal Creek . | ..... 17-2-K |
| Coal Creek ..... | ..... 17-2-M |

Data Source

HUD Flood Insurance Studies

Unsuitability Determination

The following areas are determined to be unsuitable for further consideration for coal development: 4,900 acres-------.7 billion tons.

| STREAM (Floodplain) | MAP LOCATION |
|---|---|
| Rattlesnake Creek .... | .. 17-2-E |
| Belle Fourche River .. | .. 17-2-F |
| Hay Creek ..... | .. 17-2-G |
| East Fork Coal Creek . | .. 17-2-H |
| West Fork Coal Creek . | .. 17-2-I |
| Kintz Creek ..... | .. 17-2-J |
| Middle Fork Coal Creek | .. 17-2-K |
| Gold Mine Draw ..... | .. 17-2-L |
| Coal Creek ..... | .. 17-2-M |

The remainder of the review area is acceptable for further consideration for further coal development: 59,100 acres----------9.0 Billion tons.

EXCEPTION

Leasing may be allowed where the land management agency determines that:

1. Leasing a particular tract is the only practicable alternative, and

2. Potential for harm to people or property and natural and beneficial values of floodplains can be minimized through use of demonstrated and available mining and mitigation measures.

BLM Library
Denver Federal Center
Bldg. 85, OC-521
P.O. Box 25047
Denver, CO 80225

BLM Library
Denver Federal Center
Bldg. 85, OC-521
P.O. Box 25047
Denver, CO 80225

Process

The exceptions were applied outside the multiple use decision area, based on the following considerations:

1. No communities exist within the review area, making incorporated personal and property hazard nonexistent.

2. Mines presently in operation on floodplains have demonstrated the ability to rechannel runoff water and protect natural floodplain conditions.

Findings

Exceptions were applicable to the following stream segments, making the area outside the multiple use area acceptable for further consideration for coal development in reference to floodplains.

| STREAM | MAP CODE/LOCATION |
|---|---|
| Rattlesnake Creek ..... | .. 17-2-E |
| Belle Fourche River .... | .. 17-2-F |
| Hay Creek ..... | .. 17-2-G |
| Coal Creek ..... | .. 17-2-M |

Data Source

Approved Caballo Mine Plan and Operation
Color IR Aerial Photos
USGS Topographic Maps

The reliability of the exception application is as reliable as the floodplain determination itself. The same techniques used to establish the 100 year floodplain (P-100) are used to route and reroute flood flows around a mining operation.

Unsuitability Determination

Acceptable for further consideration for coal development:
61,400 acres - 9.2 billion tons.
Unsuitable for further consideration for coal development:
2,600 acres - 0.4 billion tons.

Stipulations Required to be Attached to the Lease

Flood routing must be accomplished to provide the following considerations:

a. Ability to hold P-100 volumes of runoff.

b. Bank and structure stability which will not increase sediment production of runoff waters.

c. Construction design which will not increase or decrease natural flow velocities.

d. Construction design which will not cause upstream or downstream head-cutting and/or accelerated erosion.

e. Embankment materials must be used which will not contribute increased concentrations of or new dissolved solid (i.e. $SO_4$).

f. Insurance that the original stream channel, floodplain and their properties will be restored to premining conditions.

PUBLIC COMMENT

No public comment relative to the application of the criteria has been received.

18. Municipal Watersheds

CRITERION

Federal lands which have been committed by the land management agency to use as municipal watersheds shall be considered unsuitable for coal mining.

Process

The process involved checking to see if there were any municipal watersheds in the review area.

Findings

There are no municipal watersheds within the review area.

Data Source

BLM Planning System
USGS Topographic Maps
BLM ½" to the mile color quads

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

Leasing may be allowed where:

1. The land management agency determines that mining will not adversely affect the watershed to any significant degree, and

2. The municipality or water users concur in the issuance of the lease.

The exceptions do not apply.

PUBLIC COMMENTS

No public comments relative to the application of the criteria have been received.

19. National Resource Waters

CRITERION

Federal lands with National Resource Waters, as identified by States in their water quality management plans, and a buffer zone of federal lands ¼ mile from the outer edge of the far banks of the water, shall be unsuitable for coal mining.

Process

The process involved the application of the State of Wyoming, DEQ's rules and regulations to identify and locate any class I or proposed class I waters within the review area.

Findings

There are no Class I or proposed Class I waters within the review area.

Data Source

BLM Planning System, DEQ Manual, Water Quality and Regulations, Sec. 1, Ch. 8.

The findings are reliable.

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

The buffer zone may be eliminated or reduced in size where the land management agency determines that it is not necessary to protect the national resource waters.

The exception does not apply.

PUBLIC COMMENT

There were no public comments received relative to the application of this criterion.

20. State Lands Unsuitable

CRITERION

A buffer zone of federal lands necessary to provide protection for any adjacent area designated as land unsuitable for mining by the state shall be considered unsuitable for coal mining.

Process

The State of Wyoming was contacted by the BLM but has not as of this date identified any lands as unsuitable for mining. The state has not identified the need of any buffer zones on federal lands for the protection of state lands.

Findings

There are no lands designated unsuitable by the state.

Data Source

State of Wyoming.

Unsuitability Determination

All lands are determined to be acceptable with no likely problems.

EXCEPTION

The buffer zone may be modified or eliminated where the land management agency, in consultation with the state, determines that all or parts of the zone are not necessary to protect the designated area.

The exception does not apply.

PUBLIC COMMENT

There has been no public comment.

21. State Proposed Criteria

CRITERION

Federal lands in a State to which is applicable a criterion (i) proposed by the State, and (ii) adopted by rulemaking by the Secretary of the Interior, shall be considered unsuitable for coal mining.

Process

The State of Wyoming presently has no criteria, therefore, the criterion has not been applied.

Findings

Not applicable.

Data Source

Not applicable.

Unsuitability Determination

Not applicable.

EXCEPTION

A lease may be issued for any area:

1. Irrespective of the applicability of the State-nominated criterion, if such criterion is adopted by the Secretary less than 12 months prior to the publication of the draft land use plan which applies to such area: or

2. Where the land management agency in consultation with the State determines that, although the criterion applies, mining will not adversely affect the value which the criterion would protect.

The exception was not applied.

PUBLIC COMMENT

No public comment was received.

22. Prime Farmlands

CRITERION

When the land management agency, with the concurrence of the Secretary of Agriculture (Soil Conservation Service), identifies federal lands having prime farmland souls, such lands shall be considered unsuitable for coal mining.

Process

The Soil Conservation Service in Gillette was contacted for information relating to prime farmlands.

Findings

No prime farmlands were identified.

Data Source

Soil Conservation Service, Gillette

Unsuitability Determination

All of the area is determined to be acceptable with no likely problems. This includes 64,000 acres with 9.7 billion tons of federal coal.

EXCEPTION

A lease may be issued when:

1. Conditions such as soil rockiness, angle of slope or historic or other conditions leading to a negative determination under permanent regulations of the Office of Surface Mining Reclamation and Enforcement (OSM) are present; or

2. Scientific studies show that crop yields equivalent to premining crop yields on nonmined prime farmlands in the surrounding area under equivalent levels of management could be obtained and that an operator or potential operator could meet the soil reconstruction standards in section 515(b)(7) of the Surface Mining Control and Reclamation Act (SMCRA) and OSM's permanent regulations.

The exceptions were not applied.

PUBLIC COMMENT

There were no comments relative to the application of this criterion.

23. Alluvial Valley Floors (AVF) (Map 2-5)

CRITERION

Federal lands identified by the land management agency, with the concurrence of the State in which they are located, as alluvial valley floors according to the definition and standards of the SMCRA, the regulations, final alluvial valley floor guidelines, and approved state programs where mining would interrupt, discontinue, or preclude farming shall be considered unsuitable for coal mining. Additionally, when mining federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, that land shall be considered unsuitable for coal mining.

Process

Wyoming State Office supplied supplemental guidance (Instruction Memorandum WY-79-90, Change 1).

To qualify as either a "Possible" or a "Probable" AVF, the area in question was subjected to the following standards:

1. Possible AVF (Must meet any one standard)

   a. Geomorph. valley with drainage basin greater than 2 square miles[1]
   b. Geomorph. valley cultivated, hayed, or farmed
   c. Geomorph. valley width greater than 300 ft
      1) Stream channel shows red on color infrared aerial photos
      2) Stream channel shows on 7½ min. quad.

2. Probable AVF
   (Must meet #1 and any two of items #2 thru 5)

   a. Geomorph. valley width greater than ¼ mile
   b. Hayed, seeded, or cultivated
   c. Flood irrigated
   d. Significant portions of geomorph. valley show up red on color infrared aerial photos
   e. Contains perennial creeks

---

1 Geomorphic Valley--Defined as a valley bounded by the first marked break-in-slope separating it from the surrounding uplands; additionally, the heads of each valley must include a drainage basin whose area is greater than 2 square miles.

Upon application of these standards, those areas not qualifying as "Possible," or "Probable," were classed as "Unlikely to be AVF's," and therefore, placed in the "Acceptable" category.

Areas classed as "Possible" AVF's were to be considered as "Acceptable Pending Study"; areas classes as "Probable" AVF's were to be designated "Unsuitable." Those areas classed as "Possible" and "Probable" were surrounded with a ¼-mile buffer strip.

| SITE | | AVF's | |
|---|---|---|---|
| Number | Name | Possible | Probable |
| 23-2-G | Unnamed ..... | x (APS)* | |
| 23-2-H | Rattlesnake Creek ..... | x (APS) | |
| 23-2-J | Unnamed ..... | x (APS) | |
| 23-2-K | Unnamed ..... | x (APS) | |
| 23-2-L | Kitchen Draw ..... | x (APS) | |
| 23-2-M | Belle Fourche ..... | ..... | x (APS) |
| 23-2-N | Coal Creek ..... | ..... | x (APS) |
| 23-2-O | East Fork of Coal Creek .. | x (APS) | |
| 23-2-P | Middle Fork of Coal Creek | ..... | x (APS) |
| 23-2-Q | West Fork of Coal Creek .. | x (APS) | |
| 23-2-R | Kintz Creek ..... | x (APS) | |
| 23-2-S | Hay Creek ..... | ..... | x (APS) |
| 23-2-T | East Fork of Hay Creek ... | x (APS) | |
| 23-2-U | Black Thunder Creek ..... | x (APS) | |
| 23-2-V | Little Thunder Creek ..... | x (APS) | |

*APS=Acceptable Pending Study.

Four of the 22 sites have been classed as "Probable" AVF's, with the remaining 10 being considered as "Possible." According to the supplemental guidance, "Probable" AVF's are "Unsuitable" and "Possible" AVF's are "Acceptable Pending Study." Although 4 sites appear to meet parameters set out for "Probable" (Unsuitable), the district is unwilling to conclusively state they are without additional field study. These 4 areas are documented as being closer to "Unsuitable" than the remaining 18. For this reason, the Casper District office has deviated from the supplemental guidance and has placed the 4 sites in the category of Acceptable Pending Study.

Data Source

Color IR aerial photos
USGS quads
BLM Planning System

The methodology used to determine (AVF's) has not been verified to determine whether the results would duplicate findings based on strict application of OSM regulations and guidelines.

Unsuitability Determination

There are no portions of the review area classified as unsuitable.

The following areas are determined to be acceptable pending study for further consideration for coal development (30,100 acres - 4.5 billion tons).

| DRAINAGE | MAP/LOCATION |
|---|---|
| Unnamed | 23-2-G |
| Rattlesnake Creek | 23-2-H |
| Unnamed | 23-2-J |
| Unnamed | 23-2-K |
| Kitchen Draw | 23-2-L |
| Belle Fourche River | 23-2-M |
| Coal Creek | 23-2-N |
| East Fork Coal Creek | 23-2-O |
| Middle Fork Coal Creek | 23-2-P |
| West Fork Coal Creek | 23-2-Q |
| Kintz Creek | 23-2-R |
| Hay Creek | 23-2-S |
| East Fork Hay Creek | 23-2-T |
| Black Thunder Creek | 23-2-U |
| Little Thunder Creek | 23-2-V |

The remainder of the review area is acceptable for further consideration for coal development in reference to Alluvial Valley Floors (33,900 acres - 5.2 billion tons).

EXCEPTION

A lease may be issued where mining would not interrupt, discontinue, ore preclude farming on land to which the first sentence of the criterion applies.

The exception was not applied due to the fact that no AVF's qualified as "Unsuitable" within the review area.

PUBLIC COMMENT

Comments at the public meeting in Gillette on March 28, 1979 were as follows:

1. BLM doesn't have sufficient information on alluvial valley floors to make determinations. Therefore, we should classify these areas unsuitable pending further study.

2. At the meeting in Gillette, further explanation of the "possible" and "probable" alluvial valley floors was requested.

3. The Wyoming Department of Environmental Quality has stated they cannot concur with our methodology and results.

24. Reclaimability

CRITERION

As information regarding reclaimability on a local or regional basis becomes available, the land management agency shall use such information to determine if areas of federal lands are reclaimable to the standards of SMCRA, the regulations, and approved State studies, hydrologic studies, and studies concerning revegetation. If any area is determined not to be so reclaimable, such area shall be considered unsuitable for coal mining.

Process

This criterion requires information on hydrologic, soil, and revegetation studies that have not been done by either the federal government or the coal companies. There are several studies in hydrology and soil classification, but the studies are in the beginning stages, therefore no pertinent information can be assimilated from them.

It has not been proven that reclamation will restore areas to as good as or better than before mining. If reclamation techniques could be developed to a high degree, mitigation could be incorporated in future efforts.

Findings

Not applicable.

Data Source

Not applicable.

Unsuitability Determination

Not applicable.

EXCEPTION

A lease may be issued upon presentation of information which contains results of studies showing that reclamation is possible to the standards of the SMCRA, OSM's permanent regulations and approved State programs, including State regulation.

The exception was not applied.

PUBLIC COMMENT

No public comment was received.

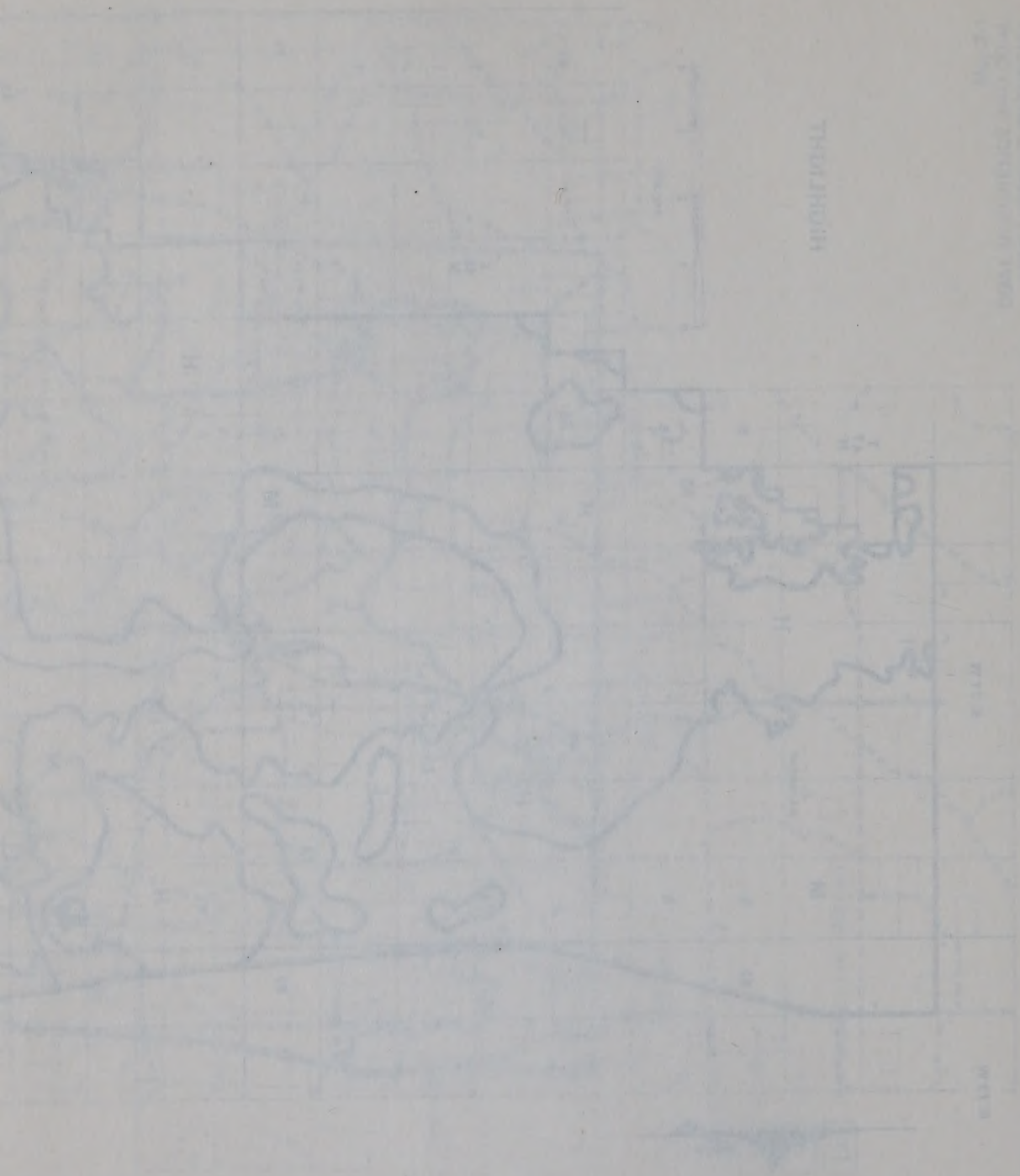
H High

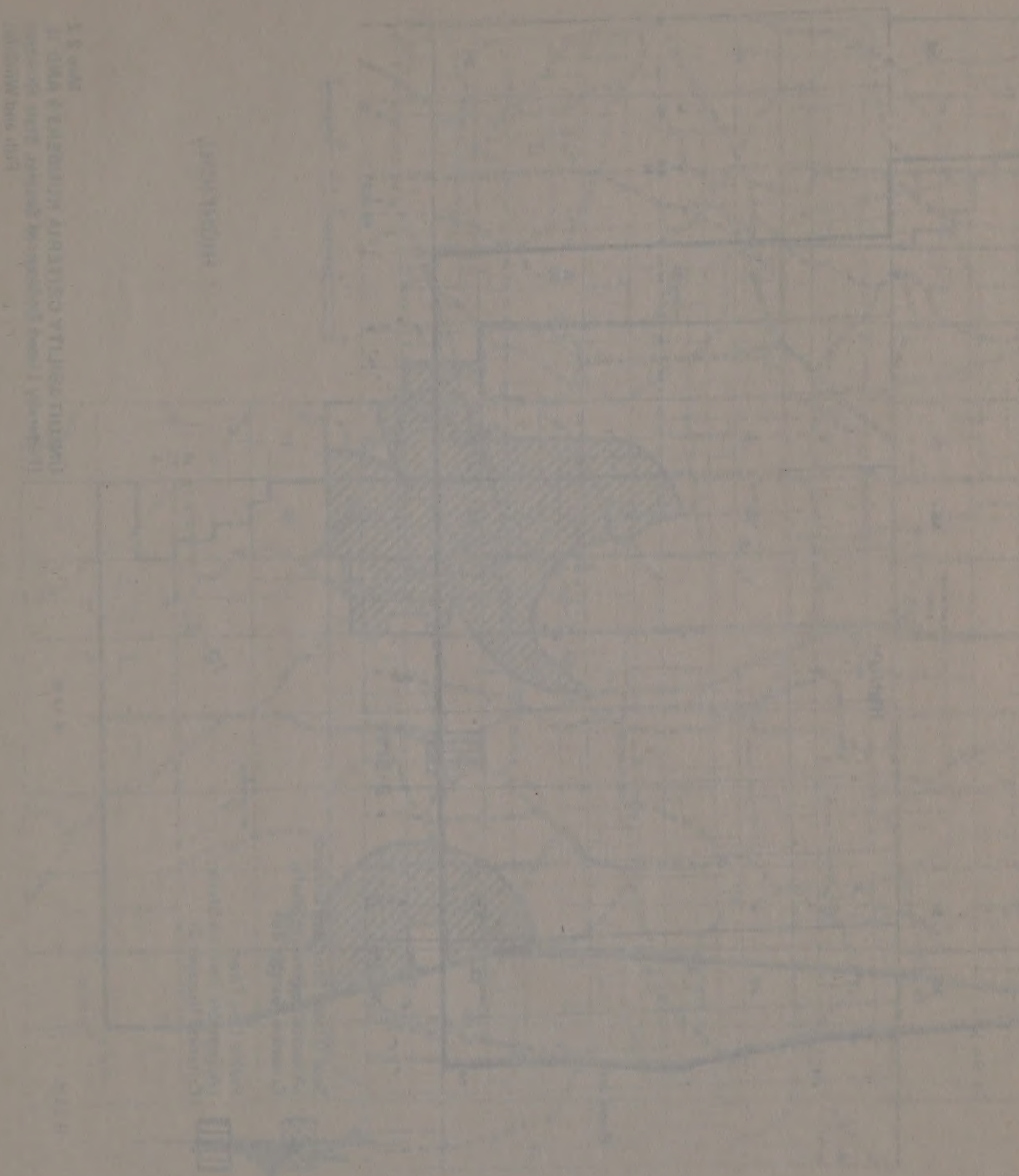
M Moderate

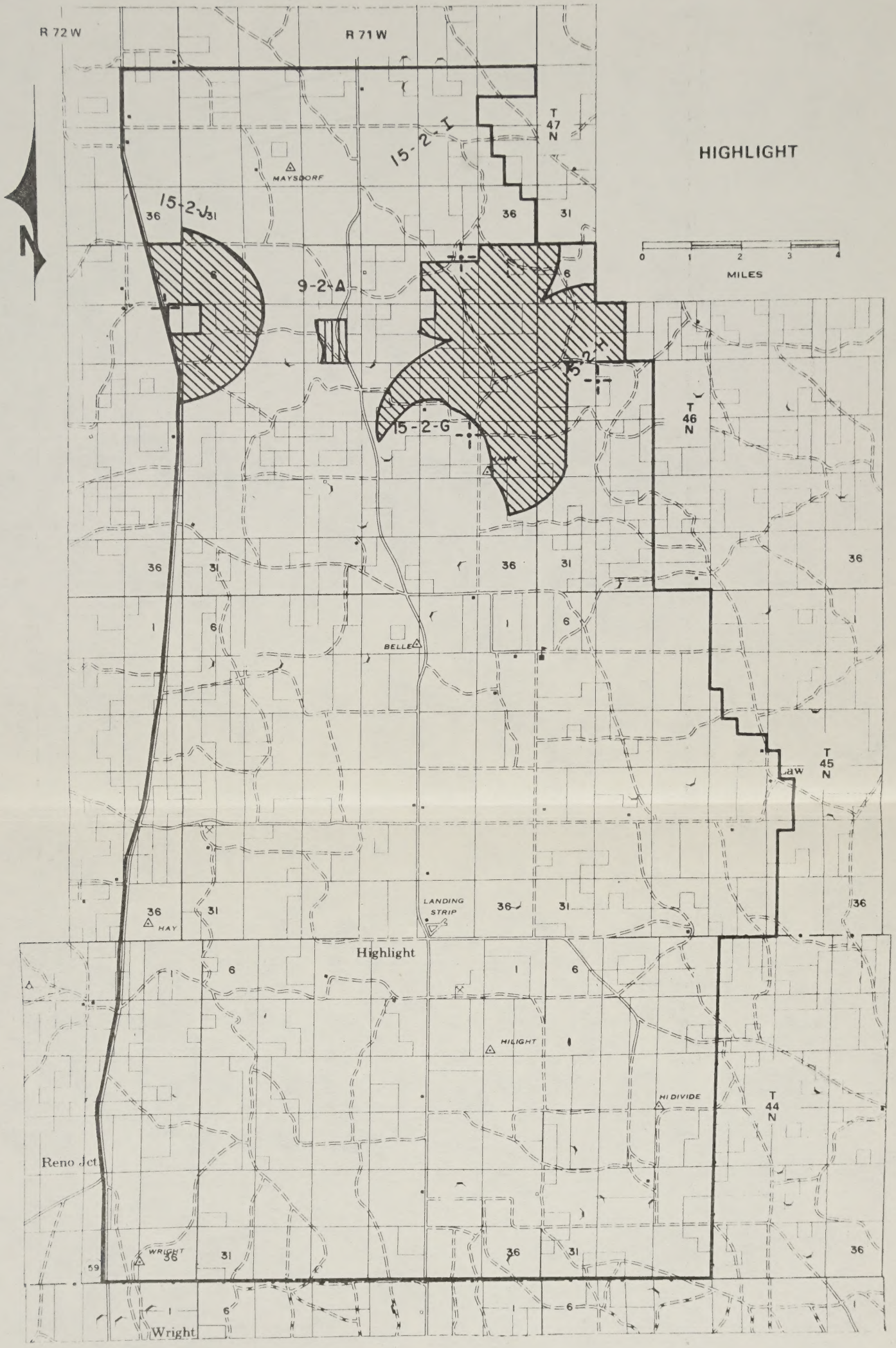
L Low

LL Overburden is over 500 Feet

Map 2-1
COAL OCCURENCE AND COAL
DEVELOPMENT POTENTIAL



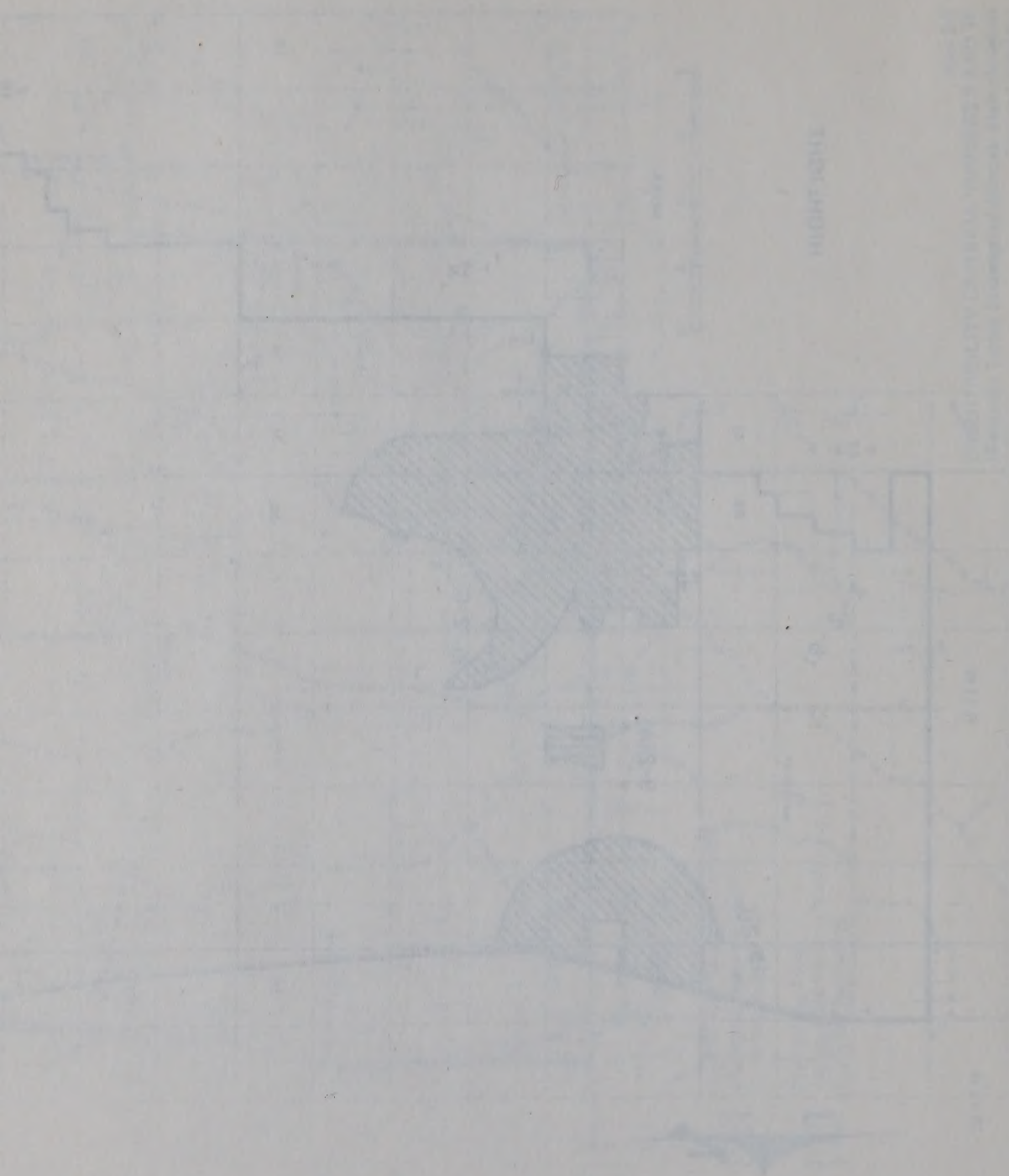


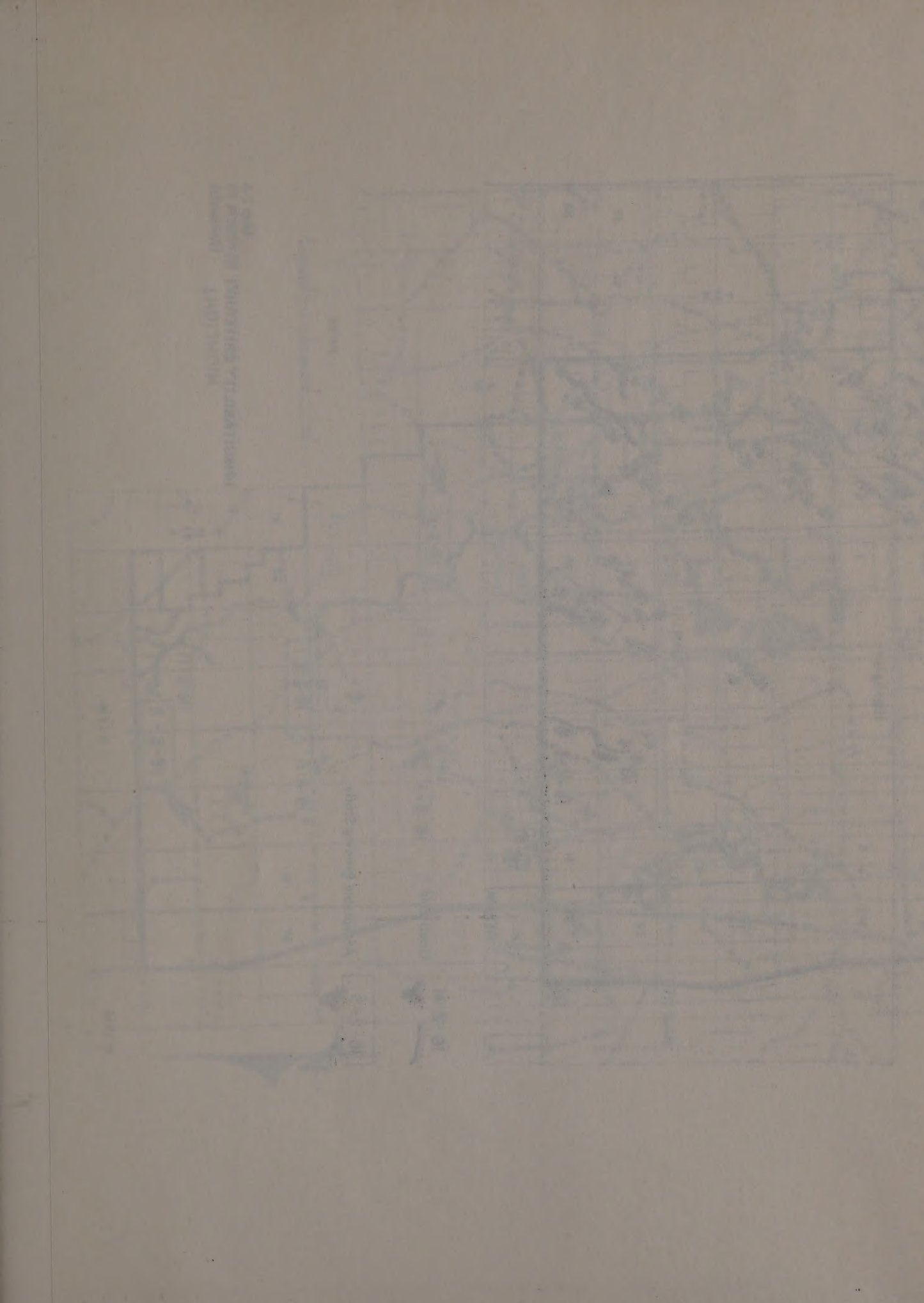


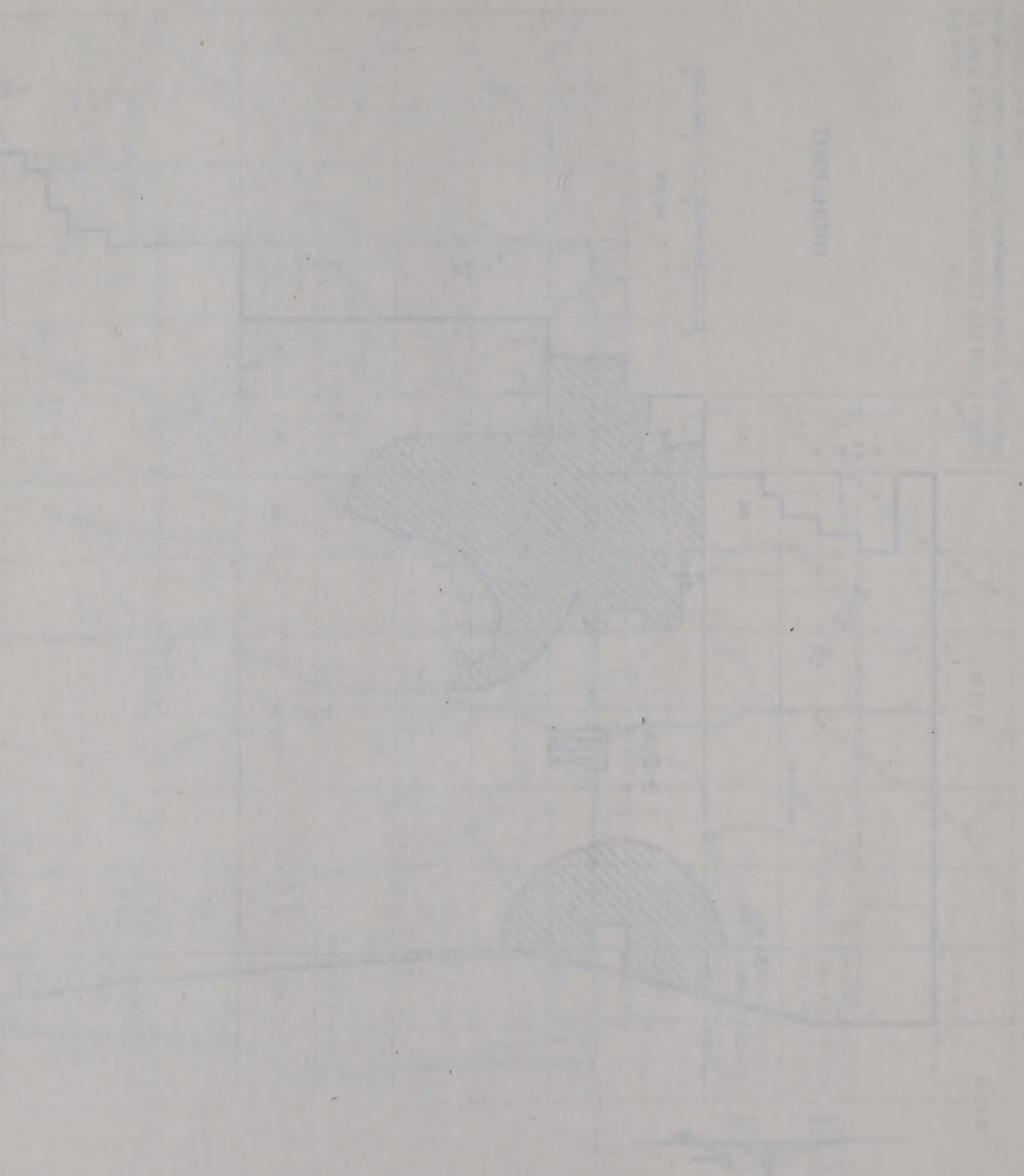

Sage Grouse Strutting Grounds
(Acceptable Pending Study;
Criterion Number 15)

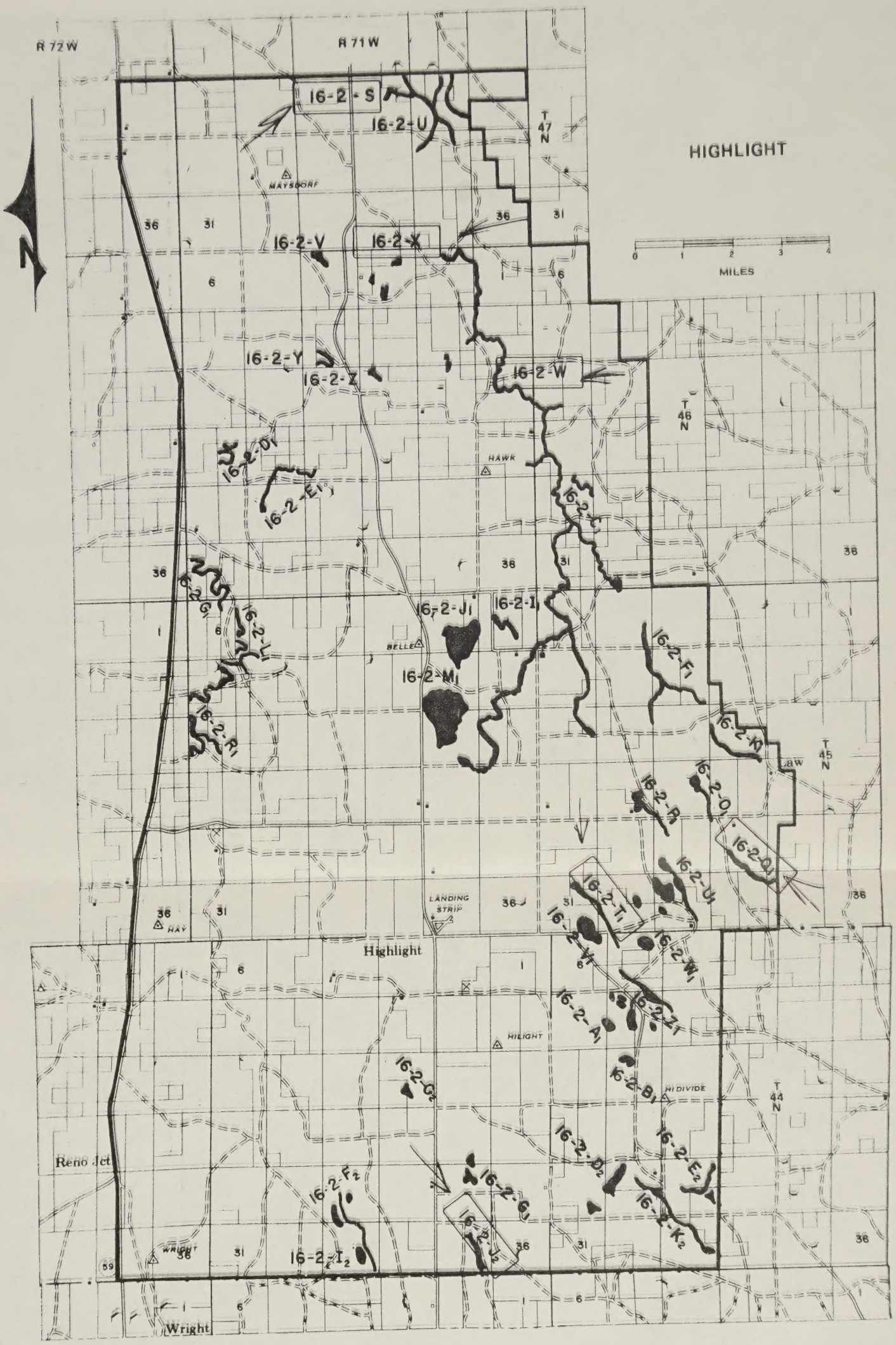
Prairie Dog Town
(Acceptable Pending Study;
Criterion Number 9)

Map 2-2
**UNSUITABILITY CRITERIA NUMBERS 9 AND 15**
**(Federally Listed Endangered Species; State Resident Fish and Wildlife)**





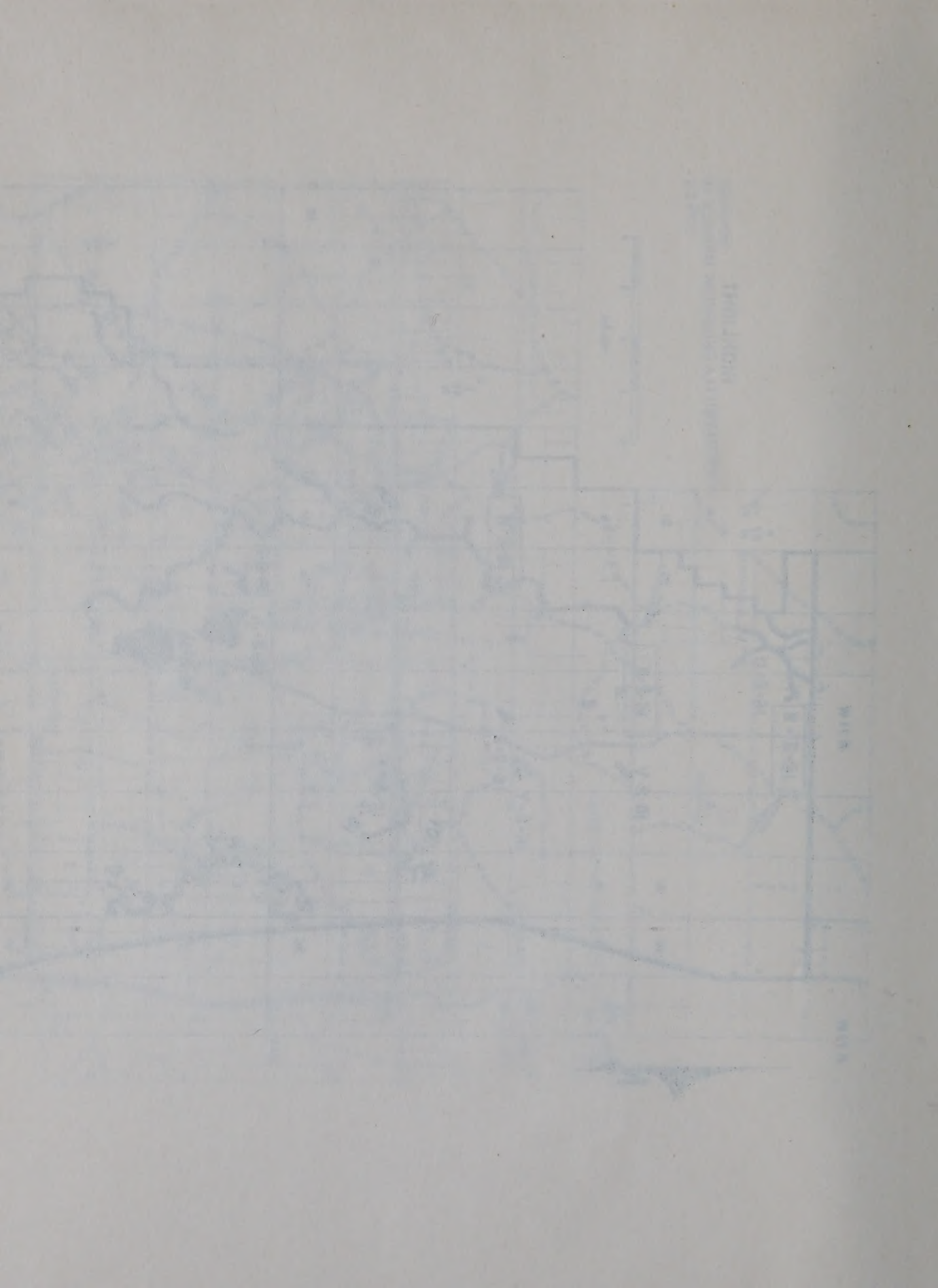


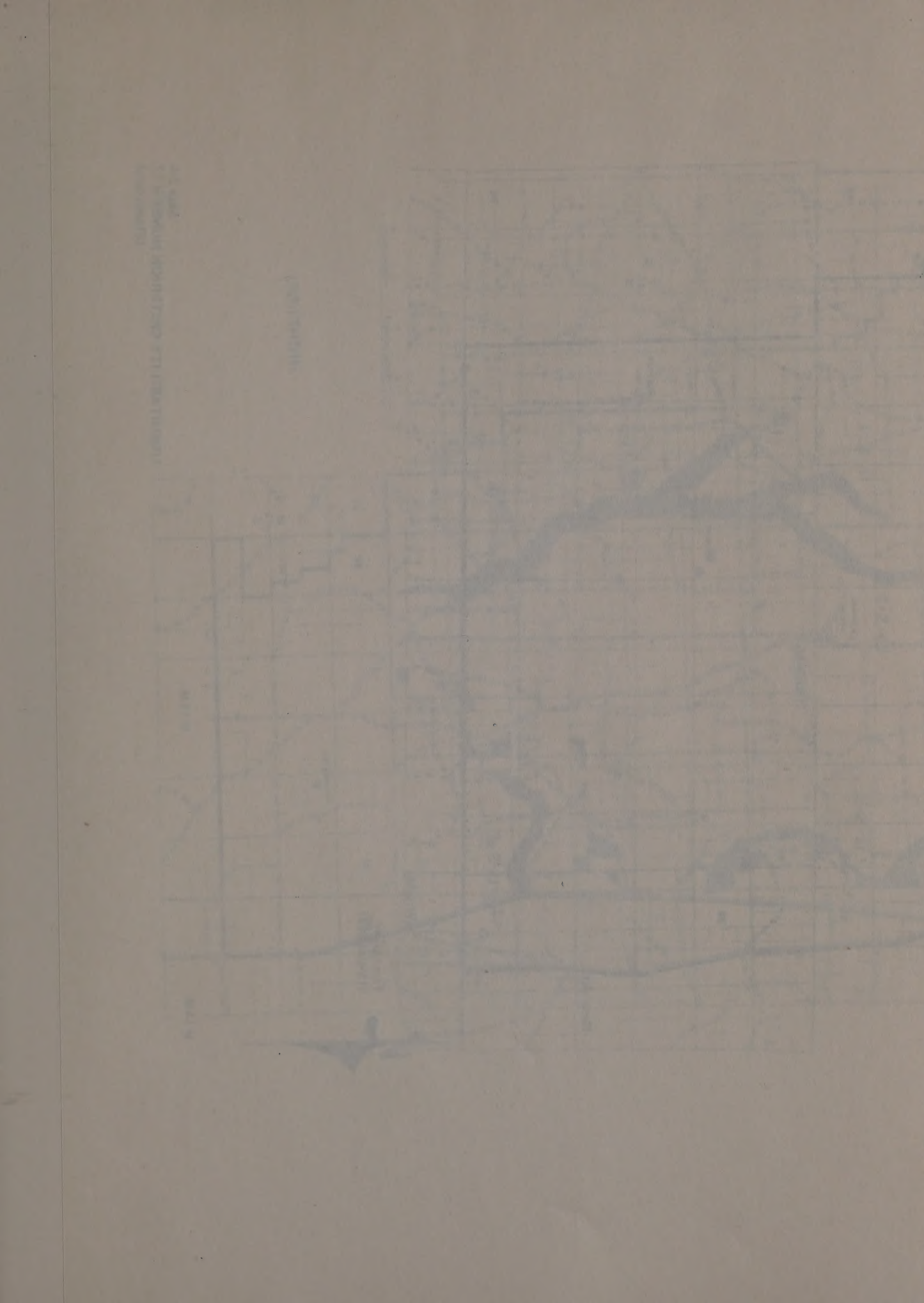


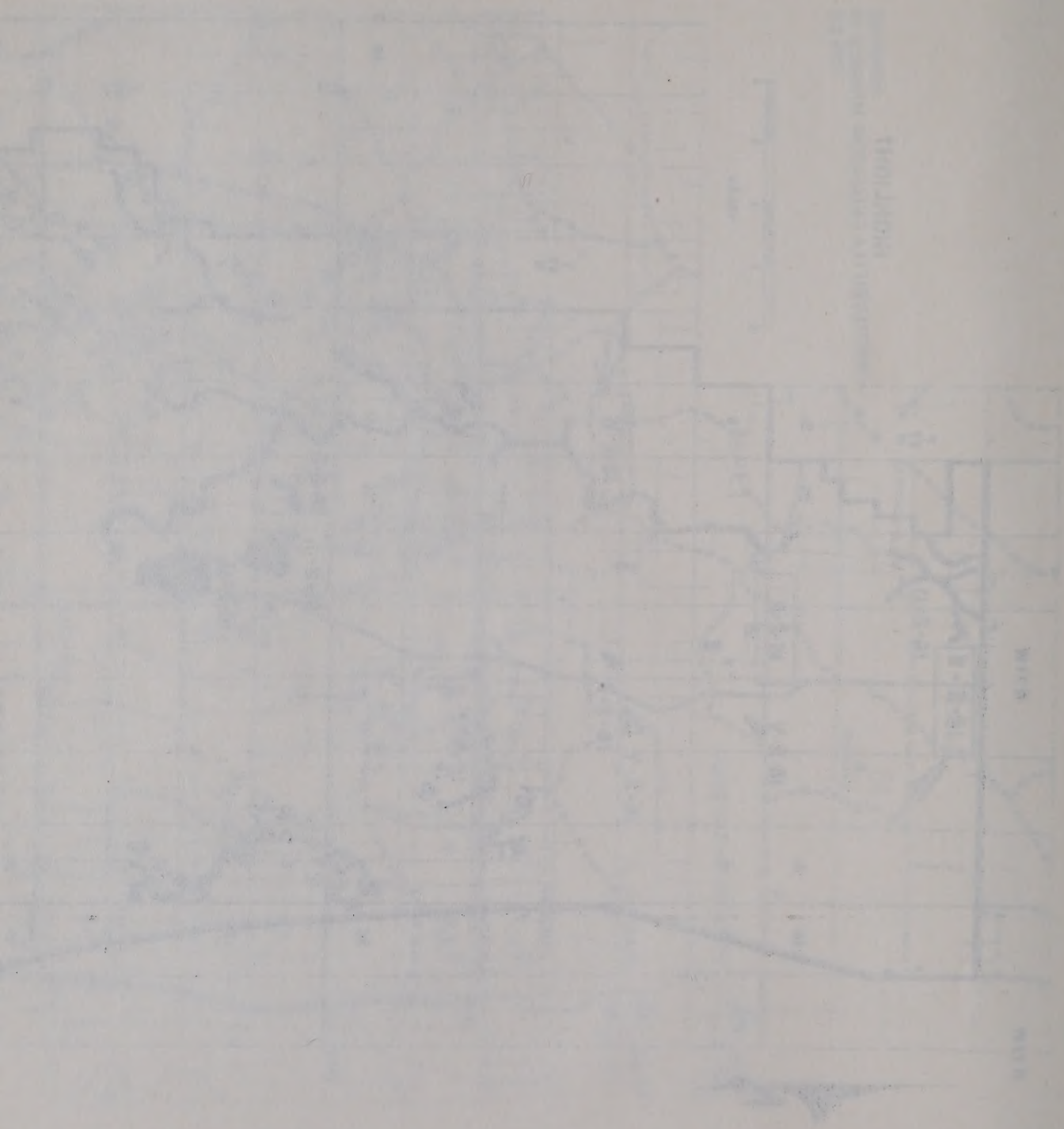

16-2-M — Unsuitable

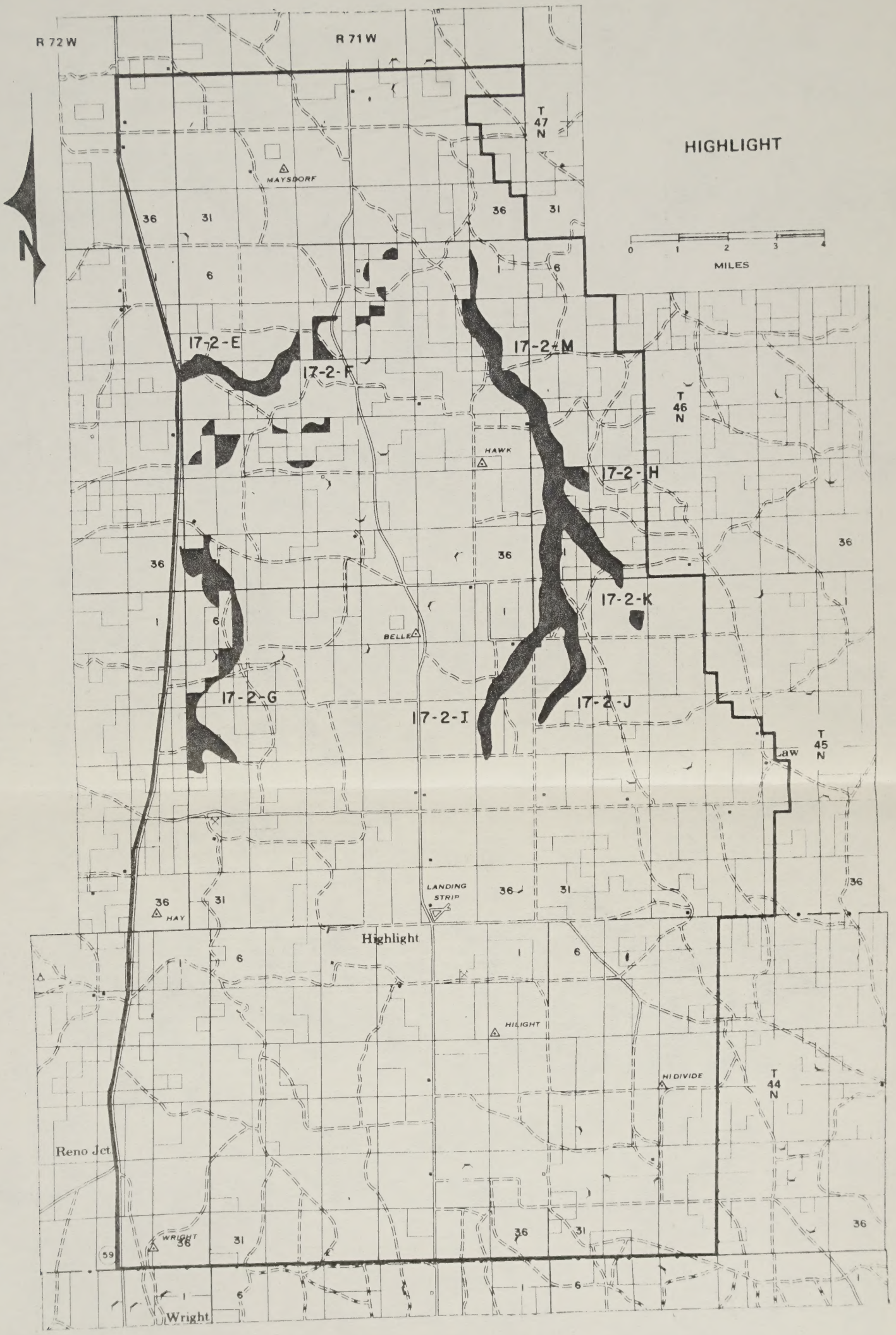
16-2-S — Acceptable Pending Study

Map 2-3
UNSUITABILITY CRITERION NUMBER 16
(Wetlands)

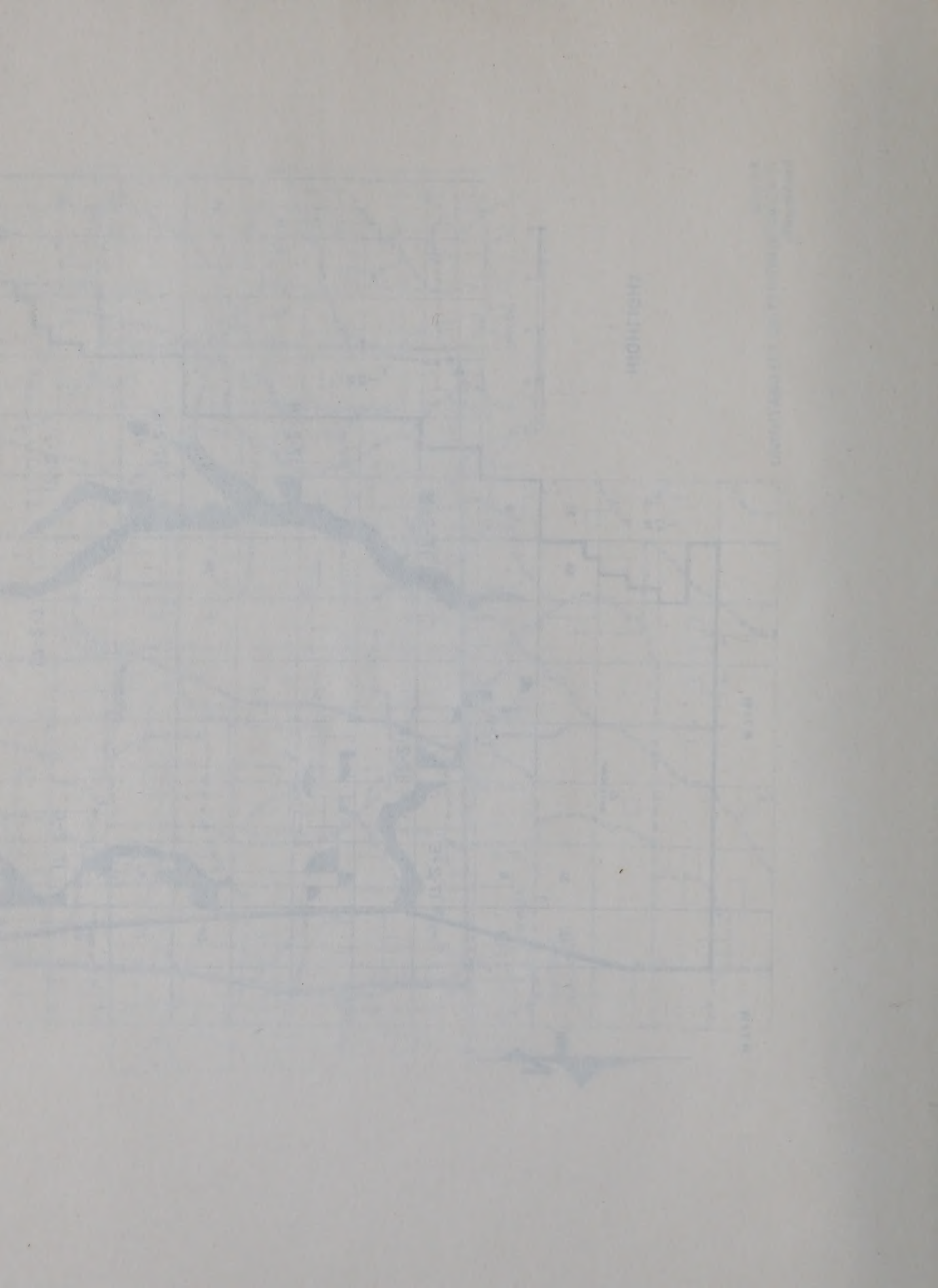


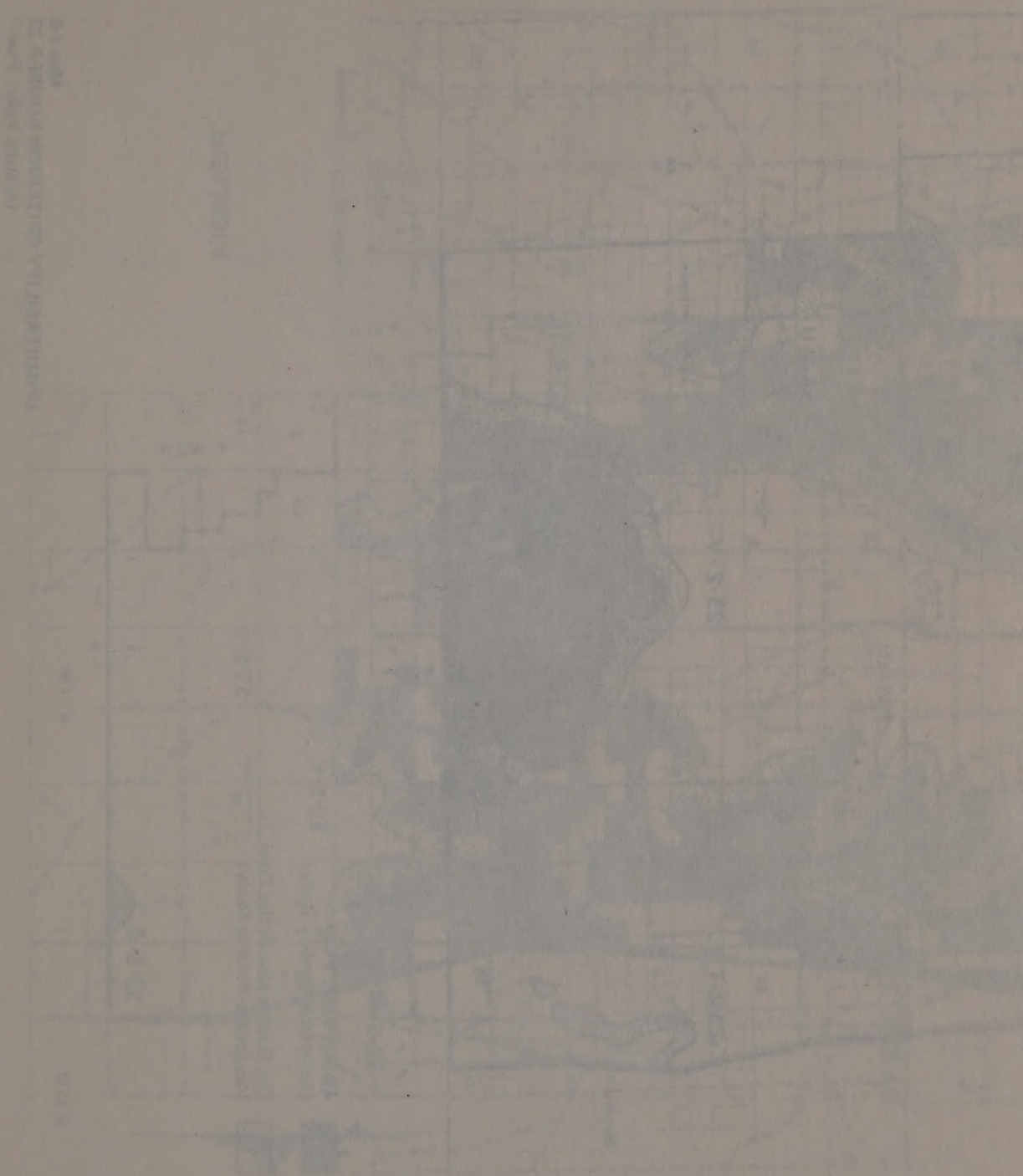


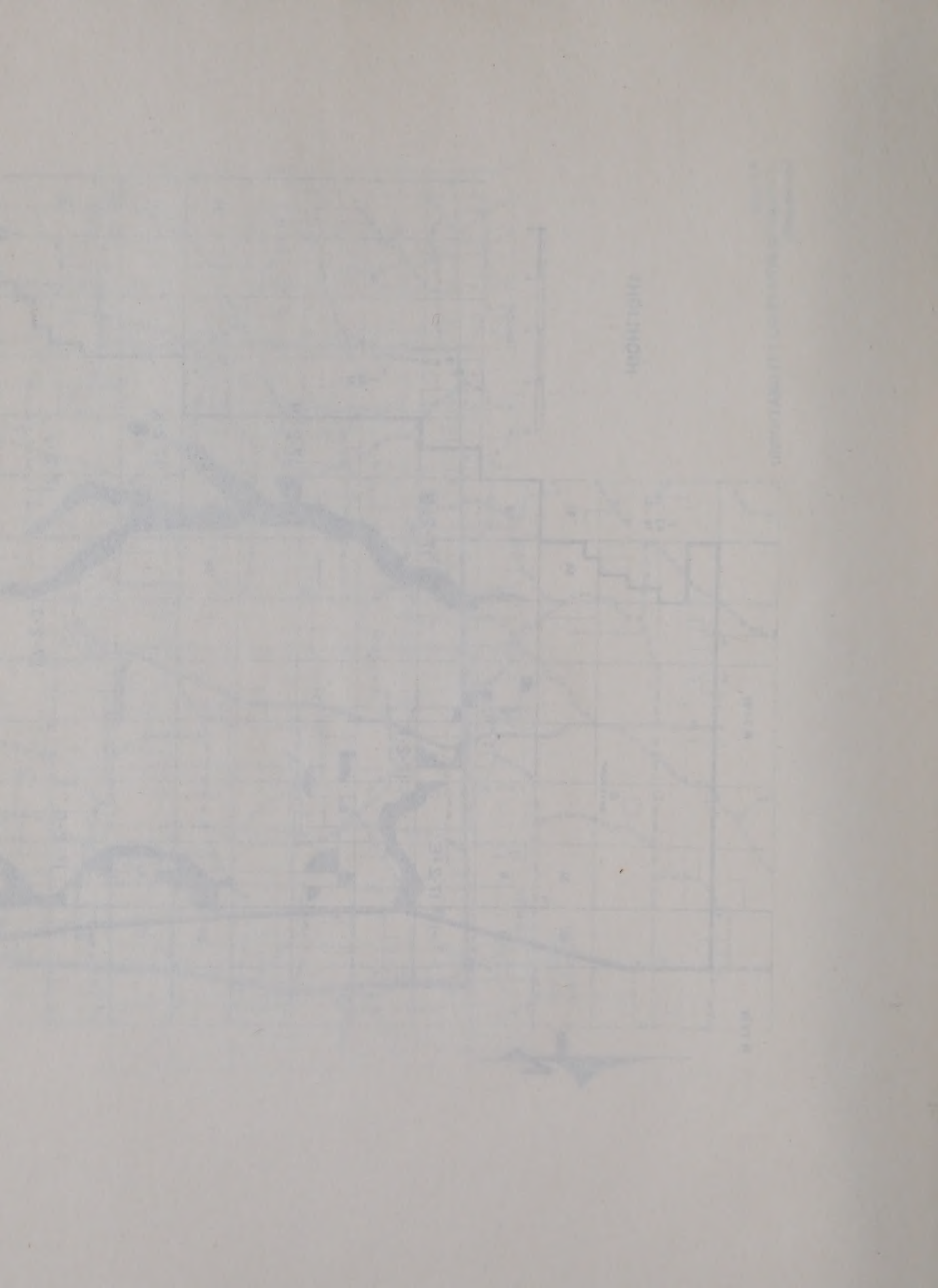


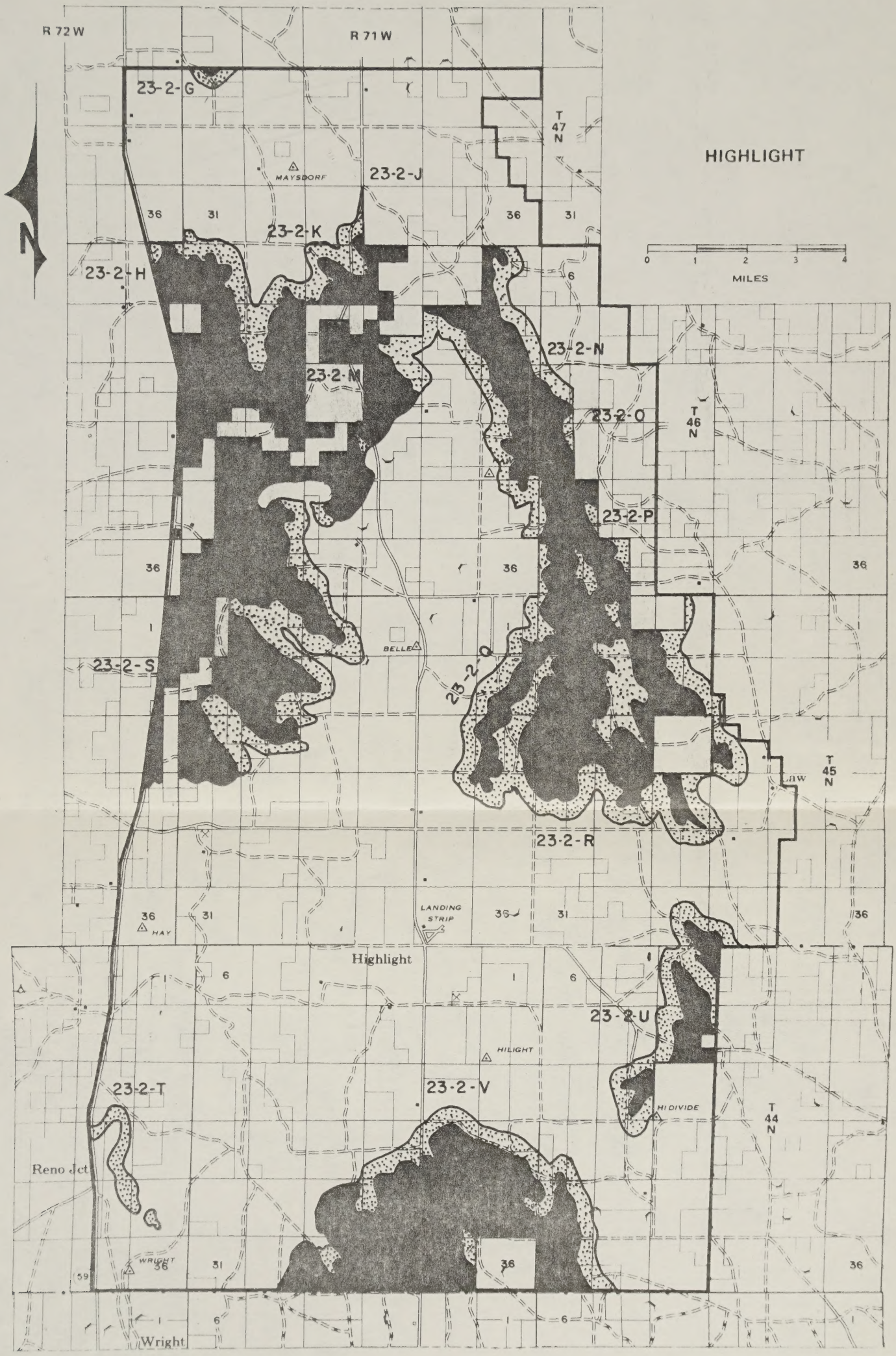



Map 2-4
UNSUITABILITY CRITERION NUMBER 17
(Floodplain)





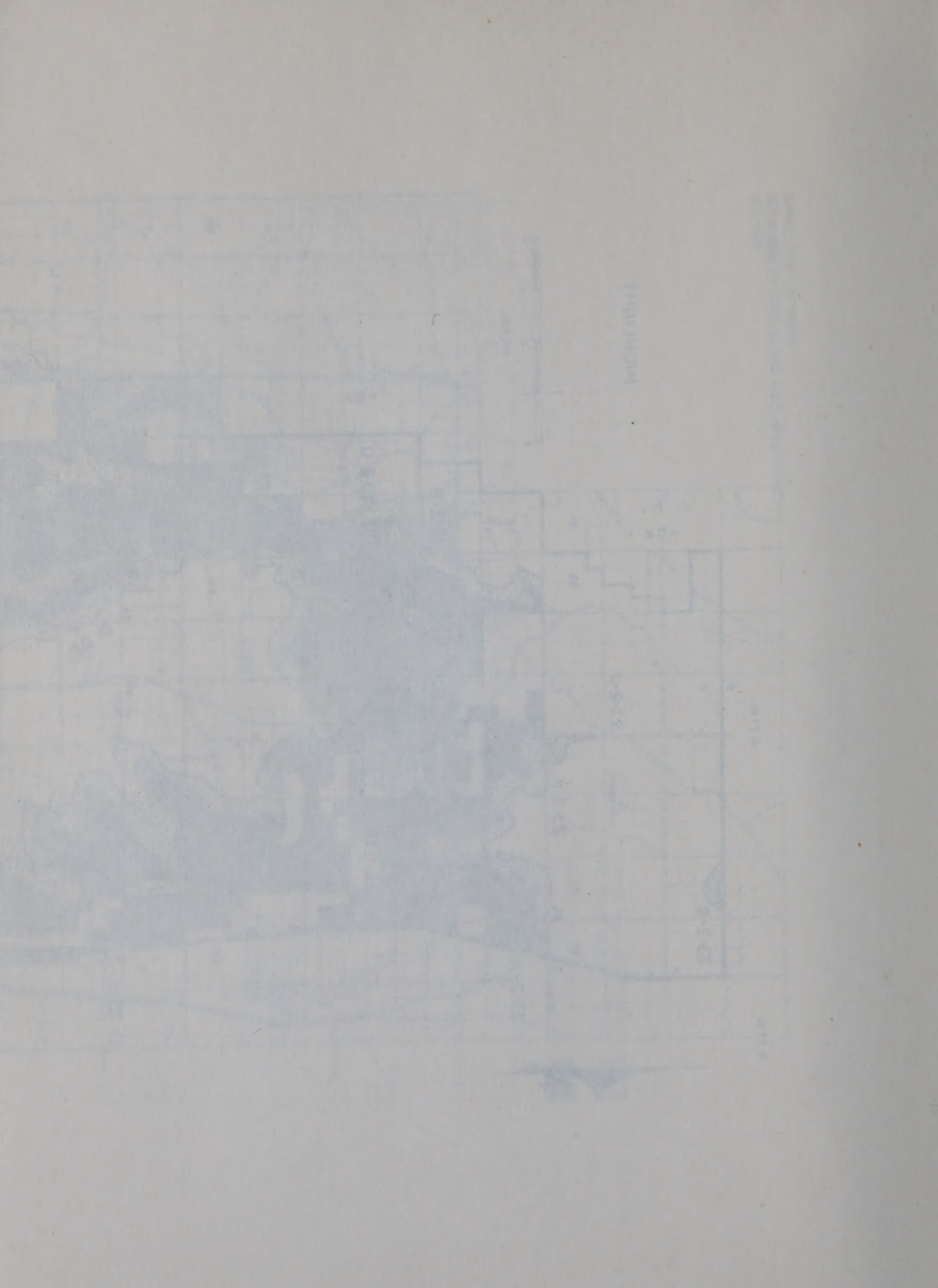





Alluvial Valley Floor
(Acceptable Pending Study)

One Quarter Mile Buffer Zone
(Acceptable Pending Study)

Map 2-5
UNSUITABILITY CRITERION NUMBER 23
(Alluvial Valley Floor)



# APPENDIX 1

# PUBLIC COMMENTS

Public Comment Summary
Coal Unsuitability
Gillette Meeting
3/28/79

Most public comment involved general questions about the procedure and definition of terms. These included:

(1) Difference between "possible" and "probable" alluvial valleys
(2) Acreage questions
(3) Buffer zone sizes for prairie dog towns
(4) Difference between "moderate" and "high" potential coal

Some of the more specific comments included:

(1) Oil and gas development and coal development can take place simultaneously
(reference to Highlight O & G field)
(Jim Tate, Mike Elmore)

(2) BLM doesn't have sufficient information on alluvial valleys to make recommendations
(Sarah Goren, PRBRC)

(3) BLM is now implementing a leasing program which is illegal
(Sarah Goren, PRBRC)

(4) For socioeconomic reasons, coal development should be close to urban service centers
(Joe Racine, Gillette City/County Planner)

(5) Do criteria apply to other mineral development?
(Forest Strutaberg, Carter Oil)

(6) Series of questions and comments from Phil White, Texas Energy

(a) How can boundary changes be requested?
(b) Were areas of industry interest considered?
(c) Why were some high potential coal areas excluded?
(d) "The interest of Texas Energy will be seriously affected by your failure to include our holdings in T. 48 N."

BLM

WYOMING
EXECUTIVE DEPARTMENT
CHEYENNE

ED HERSCHLER
GOVERNOR

ACTION BY SD

| ROUTE | INITIAL | DATE |
|---|---|---|
| DM | | |
| ADM | pm | 3/28 |
| EC | | |
| AO | | |

RECEIVED CASPER MAR 28 1979 BLM WYO.

| | | |
|---|---|---|
| AA | | |
| RES. | CR | 3/28 |
| OPR | | |
| BUFFALO | | |
| PLATTE | | |
| NEWCASTLE | | |

March 26, 1979

Mr. Robert D. Wilber
District Manager
U. S. Department of the Interior
Bureau of Land Management
District Office
951 Union Boulevard
Casper, WY 82601

Dear Mr. Wilber:

Thank you for the opportunity to review the supplement to the Eastern Powder River Basin Management Framework Plan. The supplement, which applies twenty-four coal development unsuitability criteria, is a major step in the emerging federal coal management program, and I have accordingly taken a personal interest in its implementation.

My review of the supplement raises at least three serious questions.

First, the supplement conveys no sense of either the quality or range of the data used to apply the unsuitability criteria. I think that the supplement should fully disclose the data base used to make unsuitability decisions. Further, while I can appreciate the limitations on your exercise due to budget and manpower constraints, I question whether these constraints excuse full performance for the entire planning unit. The programmatic environmental statements published last December stressed the locational factors which justify renewed leasing (Section 2.8.2), and I think the Bureau of Land Management is obligated to supply a complete perspective on alternative patterns for development.

Second, a number of criteria that you will apply upon further study, such as delineation of alluvial valley floors and high interest state resident fish and wildlife, must be applied with state participation. I prefer that consultation on these criteria be directed through my office. I will be directly involved in later stages of the federal coal management program, and I think it is best to use consistent procedures for the application of unsuitability criteria.

Third, I understand that you may have recently received clarification from Washington regarding application of certain unsuitability criteria. One instance of particular interest is the protection of wildlife populations, which need not be protected totally, but only in part. This opens the question of mitigation measures, or at least coal development in parts of areas which might otherwise be wholly excluded from consideration. Since this Washington directive apparently alters the ground rules that were in force when you first prepared the supplement, I am interested in learning what changes, if any, you will make.

These three questions suggest that, both procedurally and substantively, it is impractical for me to review the supplement at this time. I believe that a response from you will be necessary if I am to properly fulfill my responsibilities under the new program.

Yours sincerely,

Ed Herschler

EH/amt

cc: Mr. Guy Martin, Assistant Secretary for Land and Water, USDI
Mr. Daniel Baker, State Director, BLM
Mr. John Watson, WIEB/WINB